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ARTICLE I. *Observations on Remittent Fever, founded upon Cases observed in the Pennsylvania Hospital.* By THOMAS STEWARDSON, M. D., one of the Physicians to the Institution.

THE remittent is by far the most common form of fever, the intermittent excepted, which is met with in the middle and southern sections of the United States. It is described in every elementary treatise on the diseases of our country, and yet it is surprising how few particular histories of it we possess, affording a connected and detailed account of the results of personal observation. To Europe, also, in the southern portion of which, especially the south of France and Italy, this disease prevails to a considerable extent, the same observation is in some degree applicable, for there also the treatises on remittent are few and imperfect, when compared with the numerous and elaborate histories of the several forms and appearances of continued fever.

By most physicians, we believe, that remittent is regarded as much more nearly allied to intermittent than to continued fever. By some, indeed, the two first, viz., intermittent and remittent, are considered as essentially the same disease, which in all its forms is entirely distinct from proper continued fevers. It has also been supposed that remittents were mere modifications sometimes of continued, and at others of intermittent fever; and again, it has been assumed that most, if not all of these fevers, are identical in nature, and vary only in form and type, owing to certain accidental circumstances of season, climate, temperature, &c. One eminent writer, M.

Bouillaud, has denied the very existence of remittent fever, which he most unceremoniously styles a real nosological superfœtation (*veritable superfœtation nosologique.*) The principal if not the only ground upon which this declaration is founded, is, that M. B. had never met in the hospitals with a disease to which the distinctive title of remittent was properly applicable. No weight, however, can of course be attached to such an argument, when it is known that this form of fever, so common in certain countries, and described as remittent, bilious, &c., is rarely if ever seen in Paris. Indeed, whoever reads with attention the works of Lind, Johnson, and others, cannot fail to recognise in their descriptions a disease presenting features very different from those which belong to proper continued fever, at least those species of it to which the terms typhus and typhoid have been respectively applied. To avoid confusion, I will here observe, that, in accordance with the views of several recent writers, I restrict the term typhus to that species of continued fever which has been at various times described under the name of jail or hospital fever, petechial typhus, &c., and in which the glands of Peyer retain their healthy condition; whilst, by typhoid fever, I understand the disease described under that name by Louis and Chomel, the especial anatomical character of which consists in a peculiar alteration of the glands above mentioned. The latter is identical with the common continued fever of this portion of the United States, and, according to the account of Professor Jackson, of Boston, it would appear to be the prevailing form of fever in the neighborhood of that city, and perhaps also in the eastern states generally.

By remittent fever is understood a disease in which there are distinct paroxysms of fever, alternating with remissions, the paroxysms for the most part coming on regularly every day, though generally, perhaps, more severe at the tertian period. In some cases the remissions are so perfect as to amount almost to intermissions, whilst in others they are very indistinct, and hence it is perfectly true that as to mere type, the disease sometimes approaches to the intermittent, and sometimes to the continued. But however indistinct the remissions, or whatever may be the form which the disease assumes, and few are subject to such variation from season, climate, &c., I believe that it will always be found to possess certain characteristics, which mark it out as essentially distinct from typhoid and other continued fevers. The difference, then, and I think the reader will find much in what follows to sustain the opinion, is not one of mere type, but of essential nature, and the term remittent is no farther applicable to the disease before us, than as it expresses a feature generally observable throughout the whole or the greater part of its course, but still in some cases so slightly marked as to be with difficulty distinguishable, except, perhaps, for a short period at the commencement, or at the approach of convalescence, from the ordinary diurnal remissions of most fevers. The above view is the one which is perhaps now most generally adopted, but to establish on more satisfactory

grounds the analogies and discrepancies observable between remittent and other idiopathic fevers, as well as to elucidate a variety of questions connected with it, detailed histories of the disease as it occurs in different places especially the different sections of our own country, accompanied with a full description of the post mortem appearances, are still wanting. Modern discoveries in reference to the morbid changes observable after death in fevers, as well as the more accurate appreciation of symptoms with reference to these and to diagnosis, render it much easier than formerly to draw the line of distinction between the different species of fevers, as the number of points of comparison is greatly increased.

In the following pages I shall give an account of the cases of remitting fever which occurred in the Pennsylvania hospital during my term of duty in the year 1838, as well as of the fatal cases which occurred during the two following years. In the season of 1838, which was the first of my attendance in the institution as prescribing physician, I kept notes of every case of the disease which was admitted, but from various circumstances, the details which they contain are much less numerous than I could have desired. These notes were for the most part taken by myself, but for an account of the state of the patients at hours when I could not conveniently visit the wards, I am indebted to the kindness of Drs. Smith and Meigs, the resident physicians. Regular notes of all the cases were not kept during the two following years, but I have added to the series the fatal cases which occurred during these years, in order to render the account of the post mortem appearances as complete as possible. For much assistance in drawing up the notes of the cases which occurred during the past season, I am indebted to Dr. Stillé, at that time resident physician. In the analysis of the cases before me, I shall adopt the numerical method, not because I think that "numbers are the only true demonstrable root of human knowledge," but that we may frequently, by their means, in the analysis of the phenomena of disease, arrive at positive and highly important data, scarcely attainable in any other way. That this method has been already abused, and carried out into a most wearisome and unprofitable detail, may perhaps be true, but we must not on this account disclaim its proper and legitimate use. By some it is confounded with the calculation of probabilities, to which it has not, in many respects, the most remote affinity. The object of its employment is simply to arrive at more varied and precise data than are otherwise attainable, and thus to lay a broader and more secure foundation on which to rest our conclusions.

The whole number of cases of remittent fever admitted into the medical wards of the Pennsylvania Hospital, exclusive of a small ward for negroes, from the 1st of July to the 1st of October, A. D. 1838, was 20. The whole number of patients admitted during the same period was 109, three of whom only were affected with typhoid fever. The remainder laboured under acute dysenteries, intermittent fevers, and various chronic diseases. In the above

20 cases I do not include that of an individual who entered the 25th of August, and stated that he had been sick for 18 weeks, his disease having commenced whilst he was on the Susquehanna, by chills which came on every other day. Soon after his admission he became comatose, his skin was jaundiced, pulse frequent, and skin warm, stomach irritable, and a peculiar unpleasant sour odour from the body. He died on the 28th, about 64 hours after admission, and, upon examination, the principal lesions observed were a yellow colour of the membranes of the brain, which extended even to its substance, the cut surface of which presented light yellowish red points, instead of the ordinary red dots; the heart was considerably enlarged, and the valves thickened; the liver smaller than natural, especially in the left lobe, its structure perfectly cirrhosed, the granulations varying in size from a large pin's head to that of a very small pea, and of a pale yellow; one kidney (the other not examined) of double its natural size, the increase owing partly to great distension of the calyces, and partly to hypertrophy of the cortical substance; the stomach and upper portion of the alimentary canal presenting some marks of inflammation. The history of the above case in my possession is very imperfect, but enough has been stated, I think, to render it quite probable that it should be regarded as one, not of remittent, but of long continued intermittent, complicated with enlargement of the heart, cirrhosis of the liver, and chronic disease of the kidney, to the latter of which, perhaps, the fatal termination by coma may in great measure be referred. From the above series of 20 cases are also excluded a few which terminated favourably during the same period, of which either the notes are exceedingly incomplete, or the diagnosis doubtful.

Of the 20 cases, 1 only was a female; but no inference can hence be drawn as regards the comparative liability of the two sexes to be attacked by the disease, as the women's ward contains much the smaller number of patients; and those who are likely to become its inmates are generally much less exposed to the causes of the disease than the occupants of the men's ward.

The 19 men were all either sailors engaged in the coasting trade or labourers employed upon the public works in Pennsylvania, and principally on the canal near Columbia. Not one had been a permanent resident of Philadelphia for even a few months previous to admission. Of the 14 sailors, 10 were attacked on board ship, or immediately upon their arrival; 3 within a few days afterwards, at the most ten days or two weeks, and 1 was sick when he went on board. Of the remaining 5, 4 were Irish labourers and 1 was a schoolmaster, all of whom, except one, where this circumstance is not noted, were attacked whilst residing in the neighbourhood of Columbia, on the Susquehanna, where the disease was very prevalent. The female patient abovementioned was a domestic, who contracted the disease on the Schuylkill, a few miles above the city. We here, at the outset, observe a remarkable difference between this disease and typhoid fever, the latter being peculiarly apt to occur in large cities. Unquestionably,

typhoid fever occasionally attacks persons on ship-board, but then it is to be recollected that in the instances abovementioned the passages of the vessels were commonly very short, sometimes not over a few days, and that the remitting fever generally prevails more or less in the summer and fall, in the neighbourhood of the ports whence they sailed. These ports were all south of Philadelphia, viz. Smyrna, Georgetown, Norfolk, Charleston, Savannah, and Mobile. Not one patient with remitting fever was admitted from on board a vessel trading with any of the more northern ports, or from any more distant place; so that it admits of no reasonable doubt that the patients in question contracted the disease in the vicinity of the ports from whence they had just previously sailed, and where the usually admitted causes of marsh malaria are, I believe, exceedingly rife. The circumstances under which those employed in digging the canal near Columbia were placed, were such as to leave but little doubt of the influence of such malaria upon them.

During the whole summer the weather was exceedingly hot and dry, more uniformly so, indeed, than had been known for a great number of years.

The whole of the admissions took place between the 13th of August and the 17th of October, or during the space of about two months. During the other part of my term, also about two months, not a single case was admitted, except perhaps one which was considered as quotidian intermittent. After the expiration of my term to the end of the year, only one or two more cases were admitted. In fact it is uniformly true that the admissions for remittent fever into the Pennsylvania Hospital are almost exclusively confined to the months of August, September, and October, of each year. Typhoid fever, on the contrary, is much more equally distributed throughout the different seasons of the year, and, according to some, is more frequent between October and April than between April and October.

Of the influence of occasional causes in the development of the disease, I can say but little. In the case of one or two sailors, it followed a severe exposure to cold and wet, and the labourers from Columbia must necessarily have been exposed to a burning sun during the day, alternately with the damp and chilly air of the early morning and evening, whilst at the same time they were unaccustomed to the climate.

The average age of the 20 cases in question was a fraction under 25 years, the youngest being 16 and the oldest 44. There were 6 between 16 and 20, 10 between 20 and 30 inclusive, and 4 over 30 years of age. It does not, however, necessarily follow, that because far the larger proportion of cases are found to occur between the ages of 16 and 30, that there is any peculiar predisposition at that period of life to contract the disease, although that may be very probable, since the great majority of those exposed to its causes and likely to become patients in the hospital are of the age mentioned.

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The constitution of the patients appeared to be generally good, and one only is noted as being the subject of any chronic disorder.

Before proceeding farther, I will observe that the disease presented itself under three very different forms, that of common remittent, pernicious remittent, and a high grade of bilious remittent, approaching in several respects to yellow fever. Of the first there were 15 cases, of the second 4 cases, and of the third only 1. I shall not stop to notice the distinctive features of these forms, but proceed at once to lay before the reader the histories of the two fatal cases, in which post-mortem examinations were obtained, and then give a general description of the organs as presented in these, and the 5 fatal cases which occurred subsequently, comparing the anatomical descriptions with those of some other fevers. I shall afterwards study in the same manner the symptoms, &c., of all the cases, and consider some questions, which the facts before me may serve to elucidate.

Case I.—Benjamin Southwick, a sailor, aged 29, arrived at Philadelphia on the last of August, 1838, four days from Savannah, Georgia. Three days before his arrival he had been exposed in a heavy gale accompanied with much rain, and his clothes wet through. He was taken on the evening of the 31st of August, having previously felt heavy in his head, with a chill, accompanied by pain in the head and back. The chill was slight, did not last long, and during the night he perspired a good deal. On the following day, towards evening, he felt somewhat relieved, but the next day, September 2d, he had a severe chill, followed by high fever, great heat and thirst. On the 3d he was admitted into the Hospital. At that time his skin was hot and dry; pulse frequent, tense and full; headache, stupor, and injection of eye; great tenderness at epigastrium; bowels had been frequently opened. He took the effervescing draught, cold was applied to the head and six cups to the back of neck. Low diet.

September 4th.—Slept well last night; mind clear, no dulness; senses perfect; no noise in ears; no headache; some yellowness and injection of conjunctiva; a little moisture about forehead; skin warm and slightly yellow; pulse 72, moderately full and strong; no cough; tongue red, moist at edges, dryish in centre, with a whitish fur posteriorly; no appetite; vomiting of a greenish fluid; oppression and some pain across hypochondria, which are tender on pressure; belly generally supple, no metorism; bowels open twice this morning. ℞.—Cups to epigastrium; cold barley water for drink.

Evening.—High fever; skin hot and dry; tongue dry; frequent vomiting; no stupor or delirium. He was directed to take iced drinks and the effervescing draught; and to have a mustard poultice applied to the stomach; also calomel, gr. $\frac{1}{4}$; opii gr. $\frac{1}{6}$, every two hours.

5th.—Has taken four of the pills of calomel and opium. Head hot; some stupor; no delirium or headache; eyes injected; hearing good; respiration

frequent and laboured; percussion of chest and respiratory murmur natural; tongue dry and hard; irritability of stomach diminished; no vomiting to-day; little or no tenderness at epigastrium; abdomen distended, tympanitic; bowels opened slightly once this morning; skin warm and slightly moist; yellowness very marked, and of a deep shade; pulse full, moderately strong and a little jerking. The cold drinks and the cold to head were continued, and the following powder directed, viz.: calomel and jalap, āā. gr. x; cups to head if cephalic symptoms are not relieved.

Evening.—Stupor continues; some incoherence; great tenderness at epigastrium; does not complain of sensation of heat there; tongue dry, chapped and smooth; pulse more full. Head to be shaved and cold applied; cold drinks as before; also a tablespoonful every hour of the following mixture, viz.: citrate of potash, ʒiij, sulphate of magnesia, ʒv, water, &c., ℥viij.

6*th.*—Dozed during night but had no sound sleep; did not talk in his sleep; slight wandering but no positive delirium; answers questions readily and without hesitation; no headache; no noise in ears; senses perfect; pupils small, conjunctiva very yellow; slight bleeding at nose; respiration scarcely 20 in the minute, full; oppression at præcordium; great tenderness at epigastrium, which is distended and resonant from gas; has thrown up his medicine several times; the matter last vomited of a light green color; bowels opened once by injection; stool yellowish brown; skin supple, of natural temperature, of a decided yellow colour; pulse 84, less full and strong; patient lies on his back, quiet. Continue cold drinks and repeat mustard plaster to legs; a blister to the epigastrium. Discontinue the mixture of citrate of potash, and take blue mass, gr. iij; Rhei. gr. vi, one every four hours.

Evening.—The blister has drawn; oppression at præcordium increased; respiration laboured; abdomen distended, tympanitic; mind depressed, slightly wandering; hearing good. The cold drinks were continued and an ounce of tinct. of assafœtida directed by injection.

7*th.*—Eyes very yellow and pupils contracted; oppression at præcordium continues; vomiting of a light greenish fluid; skin warm, deep yellow; pulse 100 to 106, more corded and less full; has taken but two of the pills ordered yesterday, as they irritated the stomach. Discontinue pills and repeat assafœtida injection and cold drinks.

8*th.*—Much the same; great dejection of mind with slight stupor, but no delirium; hearing good; no subsultus; lies on back; yellow color of skin still deeper than before; hiccup occasionally yesterday and this morning, on which account an injection of a few drops of oil of amber have been administered. Ordered cold drinks with ice; repeat oil of amber if the hiccup returns.

He died between 11 and 12 o'clock on the same night; his consciousness being perfect to the last.

Autopsy 17 hours after death. *Head.*—Membranes easily detached from the surface of the convolutions; no infiltration under the arachnoid; considerable deep injection of pia mater, especially between the convolutions, soon

becoming bright upon exposure to the air; on the upper middle surface of the right hemisphere there is a red patch about the size of half a dollar, owing apparently to a slight effusion of blood into the cells of the pia mater; between two of the convolutions and imbedded in pia mater were found two rounded bodies about the size of small peas, of a yellowish white colour, which when cut into presented a cavity filled with a friable yellowish white substance; substance of brain firm and of natural colour; cortical substance very distinct; medullary presents a moderate number of red dots on its cut surface; central portions not at all softened; surface of ventricles of a decided yellow colour; no fluid in them; thalami and corpora striata natural; nothing else remarkable; cerebellum natural.

Chest.—No adhesions; both lungs supple and crepitating without tubercles or other organic lesion; when cut into, the upper lobes present a yellowish tinge, and when squeezed a spumous fluid of the same colour issues from them in small quantity, otherwise natural; lower lobes of a deep reddish brown, containing a large quantity of red spumous fluid, not at all granulated; texture rather firm, but natural. Heart rather large, but otherwise natural; valves supple, of a yellow colour as well as aorta, which is bright yellow.

Abdomen.—Liver of natural size, flabby, of a bronze colour, which becomes livid in the small lobe; internally of a uniform light bronze colour; acini distinguishable by a slight elevation, but no difference of colour in the two substances; gall bladder filled with a very dark almost black bile, perfectly fluid and thin; a very thin layer of it showing an orange colour. *Spleen* four or five times its natural size, very much softened, pultaceous, brownish black, looks somewhat like clotted venous blood. *Stomach* rather contracted, containing a small quantity of a thin dark coloured fluid. Mucous membrane thrown into folds along the great curvature; its colour, except for a few inches near the pylorus, was bister with a tinge of olive, especially along the great curvature, and with the intermixture of a red tinge in the great cul-de-sac; where the alteration of colour exists, it is softened, friable, and with difficulty raised from the submucous tissue to which it seems to be more adherent than natural; its thickness not materially altered; near the pylorus where it is pale, it is easily raised into long strips, and is of natural thickness. The mucous membrane of the *duodenum* a little softened, pale, with a slight greenish tinge, otherwise natural; glands of Brunner numerous in same part. The mucous membrane of the *ileum* was also generally pale, with a decided greenish tinge, and some red injection of vessels towards its lower part for the space of a few inches; its thickness was natural; no softening; is easily raised in strips. The glands of Peyer distinct and perfectly natural. Jejunum and upper part of ileum not opened; large intestine healthy; kidneys not examined.

In the above case the disease, preceded by heaviness in the head, commenced in the evening by a chill, accompanied with pain in the head and back, followed by free perspiration during the night. On the following day

towards evening the symptoms abated somewhat, but on the next or third day of the disease, the chill returned with more violence, followed by high fever, which continued on the 4th, the day of his admission, at which time the epigastrium was tender on pressure. On the morning of the 5th, the pulse was nearly natural and the skin warm, whereas in the evening, being an interval of two days from the second chill, the fever was high, thus clearly showing its tertian type. On this day there was also vomiting of a greenish fluid; the conjunctiva was yellow and injected, and the skin slightly yellow. His mind was clear and the senses perfect. During the remaining period the yellowness of the skin became more and more marked, the oppression and anxiety were generally very great, vomiting of greenish fluid frequent; his mind became much dejected, with some wandering and stupor. At times the tenderness of the epigastrium was excessive, with distension and gaseous resonance in the same part. He died on the 9th day. At the autopsy, nothing remarkable was found in the chest or head beyond the injection of the pia mater, the yellow colour of the surface of the ventricles, of the valves of the heart and aorta, and of the fluid pressed from the upper lobes of the lungs. The liver was flabby, of a bronze colour, the two substances blended together so as to be scarcely distinguishable; the gall bladder filled with dark bile; the spleen very much enlarged and softened, the stomach presenting evident marks of recent inflammation of its mucous coat; the glands of Brunner in the duodenum numerous, whilst the lower part of the small intestine, together with the large, were in a natural condition, the glands of Peyer being perfectly healthy. This is one of those cases of bilious remittent which, in some of their features, resemble so strongly the yellow fever. The most prominent points distinguishing it during life from the latter disease, were the evident tertian or semi-tertian type of the fever during its first stages, the absence of black vomit, and the less rapid course of the symptoms. After death the liver, instead of the pale and yellowish colour which it presents in yellow fever,* was darker than natural, of a bronze or livid colour; the spleen very much enlarged and softened; whereas in yellow fever, this organ is very frequently natural, and is rarely enlarged and softened to a great degree. The stomach contained a small quantity of dark coloured fluid, but very different from the black matter of yellow fever, judging from the descriptions of the latter. Admitting then the above case to be one of bilious remittent, and comparing the symptoms with the lesions found after death, how shall we explain the former by the latter? Doubtless the irritability of stomach, the anxiety, and oppression at the præcordium, tenderness, &c., are mainly referrible to the inflamed condition of the stomach,

* In drawing comparisons between remittent and yellow fever, I shall make use of the description of the latter as it occurred at Gibraltar, by M. Louis, as being the most complete account, particularly in reference to the post mortem appearances, of any epidemic of that disease with which I am acquainted; their applicability to other epidemics also having been subsequently confirmed by observation in the West Indies.

the intensity of some of them probably enhanced by the enlargement of the spleen and altered condition of the liver; to which latter the yellowness of the skin, conjunctiva, &c., must be referred. The gastric symptoms however, the anxiety and oppression, did not assume any thing like their greatest intensity until about the 6th or 7th day. Whether or not the inflammation of the stomach was present at the commencement, it is impossible to say, as the presence or absence of gastric symptoms during the three days previous to his admission, are not noticed. But supposing it to have existed, its severity certainly would not seem to have been in proportion to the intensity of the general symptoms. Besides it affords no explanation of the periodicity of these symptoms, the recurrence of the chill followed by fever, &c., at an interval of 48 hours from the first, and the subsequent exacerbation after a like interval. These are alike inexplicable by means of the other alterations observed, viz. of the liver and spleen; or at least we are unable, in the present state of our knowledge, to assume as even probable, their dependence upon either of these alterations as their cause.

The alteration of the liver, however, is remarkable from its peculiarity, and, as I think I shall be able to show as we proceed, well worthy of attention. Its nature is not easily determined, for besides the alteration of colour and consequent blending together of the two substances, with perhaps slight development of the acini, nothing else remarkable was observed. But even if we suppose the abundant secretion of bile to be sufficiently indicative of a state of active hyperæmia, or congestion, this will not explain the peculiar appearance of the organ, as congestion frequently occurs in other diseases, when no such peculiarity of aspect is observable. That the alteration in question was not owing to inflammation is rendered probable, when we reflect that it was uniform throughout the whole organ; that the natural red colour, instead of being increased, had disappeared; and that the diminished consistence amounted to nothing more than that state of general flabbiness in which many of the large viscera are frequently found, where no suspicion of inflammation can exist. If the symptoms are not fully explicable by the condition of the organs, neither is the cause of death, which certainly cannot be accounted for by the alteration of the stomach and spleen. The influence of that of the liver may have been considerable, though it is difficult to appreciate its amount. The state of the blood was unfortunately not noted, and to the alterations of this fluid, so frequent in remitting fever, we must no doubt look in part for an explanation of the fatal termination in some cases.

Let us observe, in conclusion, that the anatomical character of typhoid fever, viz., a lesion of the glands of Peyer, was wanting in the above case, in which on the other hand was found a peculiar alteration of the liver not met with in that disease.

The subject of the following case I did not see during life, and am in-

debted to Dr. Smith, then resident physician, for the following note of the symptoms.

Case II.—Hugh Aken, ætat. 20, arrived 10 days ago from Savannah. The captain and three others sick. Attack came on after getting on shore, with pain in the back, limbs, &c. Recollects no chill, but constant perspiration; no cephalalgia, or vomiting. Admitted Oct. 1st, 1838; 11 A. M. Prostration extreme, extremities cold and dry, body cool and moist; pulse scarcely perceptible, very rapid; face bronzed; tongue nearly natural. ℞. Heat to extremities; sinapism to legs—punch—also, quinine g. j., to be taken every two hours.

Evening.—Mind less dull than in the morning. No cephalalgia; eyes dull and injected, pupils dilated, contracting with light; tongue moist and slightly furred, no epigastric tenderness; pulse a little stronger, considerably over 160—body hot and dry, extremities cold. Ordered to be put into a warm blanket—continue punch, and give gr. ii of quinine every hour.

9 o'clock.—Extremities cold and clammy, cold and heavy sweat on body. Pulse scarcely perceptible—legs not affected by sinapisms. Is apparently in the cold stage, but there are no rigors; he was directed to have gr. iv, of quinine by injection, and the same quantity by the mouth half an hour afterwards, to be repeated every three hours. About 2 o'clock on the following morning, Oct. 2d, he died.

The autopsy, at which I was present, was made in the afternoon with great care, but unfortunately, owing to my not having made any note of it until a considerable time afterwards, I can only give a general description of its prominent features. The liver was enlarged, softened, and more or less of an olive or bronzed colour; the gall bladder full of very thick, tenacious, dark coloured bile; the spleen enlarged, and very much softened. Except evidences of congestion, the other organs presented nothing remarkable—of the condition of the mucous membrane of the stomach, however, I cannot speak positively. The glands of Peyer were healthy. Head not examined. Imperfect as is the history of the above case, and short as was the period during which the patient was the subject of medical observation, we can have no difficulty in recognizing in it an example of that form of remittent fever which is usually styled congestive, or pernicious remittent, and which differs very remarkably in some of its features from that presented in the previous case. Of these differences I shall have occasion to speak more particularly when describing the symptoms. The general character of the post mortem appearances, however, was very similar in the two cases, if we except the stomach, about which nothing positive can be said: I may state, however, that this organ could hardly have presented evidences regarded at the time as indicative of decided acute inflammation, as it is distinctly stated in the notes which I made some time afterwards, that nothing of a positive character other than marks of congestion, and the alteration of

the liver and spleen, already mentioned, was found. If, then, the symptoms and cause of death are not fully explained by the post mortem appearances in the former case, still less so are they in the present instance.

I shall now go on to give a general description of the condition of the organs as observed in the seven fatal cases, two of which have just been detailed. Of the remaining five, one occurred in 1839, three in 1840, and one in November of that year, a short time subsequent to the expiration of my term of duty, and for the notes of which, as already stated, I am indebted to Dr. Stillé, then resident physician.

Brain.—This organ was examined in only 5 of the cases. The subarachnoid effusion was either entirely wanting or moderate, except in one case, where there was a considerable quantity of reddish serum. In the same case the ventricles contained an ounce of bloody serum, whilst in two of the others they were empty, in a third nearly so, and in the fourth contained scarcely a drachm of fluid. In one the walls of the ventricles were of a yellow colour. The pia mater was deeply injected in one case, in which also there appeared to be a slight effusion of blood into the cells in a small circumscribed space; its veins much distended posteriorly in another. The cortical substance was of a deep shade in two cases, and in none is it mentioned as being paler than natural or presenting other alteration. In two cases the medullary substance was natural, in a third it felt pasty without giving the sensation of softness, whilst in a fourth it was soft and pasty, being at the same time dry and of a milk white colour with few bloody points. In a fifth its colour was a dirty white, mixed with a faint reddish brown, its consistence natural, with the exception of slight central softening. The same condition was presented by the cerebellum, which was natural in three other cases; its condition not noted in the fifth.

The above alterations are similar to those found in other acute diseases, and must be regarded as slight and comparatively unimportant, if we except the individual in whom there was large bloody effusion in the ventricles, &c., and whose case will be reported farther on.

Respiratory Apparatus—Pleuræ.—Old adhesions were found in a few cases, but very limited in extent. In two instances there was effusion in each pleural cavity of about half a pint of a reddish brown or bloody fluid. In both of these cases the heart was flaccid, its lining membrane deep red or reddish brown, and in one the pericardium also contained several ounces of bloody serum. The lungs, on the contrary, in one of these cases, were healthy, in the other, very dark, deeply congested, without hepatisation. It is most likely then that the pleural effusion was the result rather of an altered condition of the blood, combined, perhaps, with some softening of the tissue, than upon obstruction to the pulmonary circulation. That pleural effusion was generally absent or slight in the other cases I have little doubt, but its absence is not positively noted.

Lungs.—Of the 6 cases in which these organs are particularly described,

hepatization was found in one case only, and that at the summit merely of the middle lobe. They were generally more or less supple and crepitant, sometimes dark posteriorly; in one instance yellowish in the upper lobes, but deep reddish brown in the lower, in which case also spumous fluid of corresponding colour, but most abundant in the lower lobes, issued from the several parts when squeezed. Indeed these organs presented nothing particularly remarkable, except in one instance (Case III), where they were highly congested, their colour throughout nearly their whole extent being very dark, almost black, and the tissue but slightly crepitant, though not granulated or very easily penetrated.

The condition of the lungs then was much the same as in most other acute diseases, not especially seated in these organs. It is worthy of remark that in no instance were there any of those hæmorrhagic masses frequently occurring in the yellow fever according to the description given us by M. Louis, whilst, in both, hepatization was very rare.

Circulatory Organs.—The pericardium contained a small quantity of serum in one case, and several ounces of bloody serum in another.

Heart.—This organ was flabby in 3 of the 6 cases in which it is particularly described, and combined with this flabbyness there was diminished consistence at least in two cases. In the same three cases its lining membrane was reddish brown, deep red or violet; in two of these the colouring being deepest on the right side and in the neighbourhood of the valves, and extending into the pulmonary artery and aorta. In the other 3 cases the heart presented nothing remarkable; in all, its valves were supple, and in one case of a yellow colour. The aorta was of a bright or lemon yellow in two cases.

In the 5 cases in which the state of the blood is mentioned, this fluid was found in the cavity of the heart. In one case there were black coagula mixed with red serum; in the others fibrinous coagula, soft in two, semi-transparent and greenish in another, and generally small. No large firm fibrinous coagulum was found in a single instance. Although it is impossible to say at present whether or no the blood in remittent fever presents any characters which are absolutely peculiar, it is perfectly evident that it is the seat of morbid changes which deserve especial attention.

The following case is remarkable for the presence of most of the lesions hitherto described.

Case III.—Edward Long, ætat. 24, seaman, was admitted September 21st, 1839. Attacked about the 9th, having got inside Sandyhook, after a passage of five or six days from Georgetown, South Carolina, to New York, which place he left on the 12th for Philadelphia. According to the account of his friends, he has had a chill every day, being better in the intervals, though very weak. On the 19th, two days before admission, he was quite stupid for a time after the chill, which was not near so severe on

the following day. On the next, the chill again returned, and when brought in, 4½ o'clock P. M., the patient was in a state of perfect stupor; skin hot; pulse rather weak; pupils contracted; violent contortion of both eyes to the left side. About nine ounces of blood were taken by cups, when his pulse became suddenly thready. Sinapisms were applied to the legs, under which he reacted, and a purgative injection was given, which operated freely. The stupor continued, accompanied with stertorous breathing, and, at 9 P. M., I saw him, and took the following note.

Stupor profound; pupils small, very slightly sensible to light; is lying on his back motionless, with the head turned to the left side; deviation of the mouth to the same side; face puffy, of an earthy paleness; pulsation of carotid very strong; pulse 102, moderately strong, vibratory; skin hot, bathed in free perspiration; breathing laboured, 40 per minute; respiratory murmur pure in front; beating of heart strong; dulness on percussion over left false ribs laterally and somewhat anteriorly; spleen distinctly felt in left hypochondrium; pressure over right hypochondrium occasions a slight groan, not so elsewhere; meteorism considerable, especially below the umbilicus; no vomiting; one stool shortly after injection. A vein being opened, the pulse at first fell, when the flow of blood was stopped; after which it rose, and, the vein being again opened, became fuller, slower and stronger; 24 ounces of blood having been drawn, the pulse again fell, when the bleeding was stopped.

Ordered spirits of turpentine ℥i in some salt and water, as an injection; cold cloths to the head.

He died on the following morning about 2 o'clock, between nine and ten hours after admission.

Autopsy 32 hours after death. Embonpoint moderate; cadaveric rigidity very great, about the same on both sides.

Head.—Considerable serous infiltration in cellular tissue under scalp; unusually strong adhesions between the dura mater and arachnoid superiorly, near the margin of longitudinal fissure, as much as an inch from which are found a number of granulations, resembling glands of Pacchioni; considerable infiltration of reddish serum under arachnoid; pia mater very easily separable from convolutions, its large veins posteriorly very much distended; substance of hemispheres generally firm, its medullary portion of a dirty white, mixed with a faint reddish brown tint; corpora striata, thalami, and the central portions generally, forming the walls of the ventricles, somewhat softened; about an ounce of bloody serum in lateral ventricles; cerebellum less firm than usual, its medullary portion presenting the same aspect as that of the brain.

Chest.—Heart of usual size, flabby, pale and softened, its walls easily penetrated by the finger; internal surface of the auricles and that portion of the ventricles bordering upon them, of a reddish brown colour, as also the valves, which were otherwise healthy, unless it may be those of the pulmonary artery, which escaped examination; the blood in the left cavities but

slightly coagulated, a small soft yellow fibrinous coagulum in the right. Several ounces of bloody serum in the cavity of the *pericardium;* six or eight ounces of a dark reddish-brown serum in the cavity of each *pleura;* few or no adhesions. *Lungs* very dark, almost black, externally; same internally, except a small portion anteriorly and near the base, which is reddish brown; tissue not granulated, not very easily penetrated by the finger, slightly crepitating; no tubercles or other organic lesion.

Abdomen.—A few ounces of dark bister coloured thin fluid in the cavity of the peritoneum to the right of the spine, and just below the liver; none on the left side; omentum light brown; peritoneal surface smooth, without adhesions. *Liver* of moderate size, of a bronze colour bordering upon olive; internally the colour of the cut surface is uniformly the same, the distinction of the two substances lost. Gall bladder contracted; bile fluid, of a reddish orange colour. *Spleen* five or six times its natural size, very much softened, of the colour of dark venous blood, almost black internally. *Stomach* large. Mucous membrane thrown into folds, which were coloured of a deep orange yellow, elsewhere colour natural; its thickness natural except in a space about the size of the palm of the hand, in the great cul-de-sac, where it is thinned and softened; its consistence also is elsewhere natural, except that it is rather friable. In the *duodenum*, the glands of Brunner were exceedingly numerous. Throughout the rest of the small intestine nothing remarkable was observed; the glands of Peyer were healthy; the orifices of the crypts very marked, of a dark slate colour. The large intestine presented nothing worthy of note; its mucous membrane was easily raised into long strips. A superficial examination of the mesenteric glands showed no appreciable enlargement of them.

It may be doubted whether the above case ought not to be classed among double tertian intermittents, rather than remittents, a question which cannot be positively determined, as the patient did not come under observation until within a few hours of his death, and the account of his symptoms previously to admission is not such as to enable us to say whether the febrile paroxysms were followed merely by remission, or a distinct intermission. I have not hesitated, however, to introduce the case here, as the two forms of disease are, I think, in their essential nature the same, an opinion which the case before us, if it were really a pernicious intermittent, and not remittent, strongly supports, as the liver was found to present the same peculiar alteration as in the preceding cases, the spleen very much enlarged and softened, the glands of Brunner in the duodenum very numerous, the glands of Peyer natural, the intestinal canal generally and the other organs healthy, or without any lesion especially characteristic of another disease. The above case is remarkable for the number of analogous secondary lesions which it presented, viz: the bloody serous effusion beneath the arachnoid, in the cavities of the arachnoid, pleura and pericardium, the deep colour of the lungs and of the lining membrane of the heart, which was flabby, pale, and

softened; to which may be added the bister coloured fluid found in the peritoneal cavity to the right of the spine, and bordering upon the liver; the last from its position being, most probably, altogether a cadaveric lesion.

That the deep red or violet colour of the lining membrane of the heart is in great measure a cadaveric phenomenon, dependent upon a previous alteration of the blood, and of the texture of the organ, is now perhaps generally admitted, and the facts we are considering confirm the opinion, for both the conditions were united in every case where the appearance in question was presented. On the other hand, it was absent where the heart was firm, notwithstanding the liquidity of the blood, thus showing that the latter condition alone was not sufficient of itself to produce it. That the same general conditions, viz., alteration of the blood, and of the texture of the part, exercised an important influence in the production of the effusions of red serum is pretty evident from the fact of their being found only in those cases where the heart was flaccid.

Abdomen.—A few ounces of a bister coloured fluid were found in the peritoneal cavity in one case; in another a part of the peritoneal coat of the gall bladder, and of the neighbouring folds of the small intestine were of a rose colour, and covered with false membrane. The omentum, and many of the folds of the small intestine are noted in one case as olive coloured, there being no effusion in the cavity; in another the intestines were of a dingy ash colour, and pasty feel.

Liver.—Enlarged in three cases, and in one of them to a great degree, in the others it was of natural or moderate size. The consistence of the organ appears to have been generally diminished, being flabby, or softened, or both, in four cases, a little soft in a fifth, and moderately firm, but still readily penetrated by the finger in a sixth; in the seventh the consistence is not mentioned.

The colour was nearly the same in every case, but very different from natural. In most of the cases the liver is described as being of the colour of bronze, or a mixture of bronze and olive, in one as a dull lead colour externally, internally bronzed with a reddish shade; in another as between a brown and an olive, the latter predominating; and finally, as a pale slightly greenish lead colour, with a tinge of brown, in one instance. Few things are more difficult than a description of colour. The most correct idea of that before us would perhaps be conveyed by stating its predominant character, the same in every case, to be a mixture of gray and olive, the natural reddish brown being entirely extinct, or only faintly to be traced. This alteration existed uniformly or nearly so throughout the whole extent of the organ, except in a single instance, where a part of the left lobe was of the natural reddish brown hue. As the alteration of colour pervaded both substances, the two were frequently blended together, and the aspect of the cut surface remarkably uniform. In one case, however, there was a marked distinction of colour, the olive being predominant in the parenchyma, the

brown in the acini. Of the four cases in which these characters are mentioned, the cut surface is described as smooth in three, of a shagreened appearance, and rough in the left lobe, in the fourth. This last character was evidently dependent upon hypertrophy of the lighter coloured substance, which existed also in another instance, both cases, however, being examples of a very protracted form of the disease.

The nature of the lesion of the liver above described, characterized essentially by a peculiar alteration of colour, is not easily determined. That it is the result of inflammation will hardly be contended, and even if attended with congestion, (which I think very doubtful,) this could not account for it, as congestion is frequently present in other diseases where no such alteration of colour is observable, and where, on the contrary, its effect is to produce a deeper red. Some, perhaps, will look upon it as dependent upon the infiltration of bile into the tissue of the organ, but still it will at once be perceived that this presupposes a peculiar alteration of the bile and liver, inasmuch as the appearance presented is not found in other diseases, at least so far as I am aware. In saying that this lesion is found in no other disease, I wish to be understood as excepting those cases of pernicious and other intermittents, which prove fatal in the early stage, or before giving rise to well developed cirrhosis, abdominal effusion, &c. Indeed I think it highly probable that the same alteration of the liver will be found to exist in intermittents which thus prove fatal, an opinion confirmed by the case last detailed. (Case III.) In speaking, therefore, of this alteration being peculiar to remittent fever, I wish to be distinctly understood as not excluding intermittent fever, which in my opinion is essentially the same disease.

The lesion in question, then, being peculiar to the disease before us, and the only one which is so, (all the other lesions being common to it and other diseases,) and at the same time being found, as already observed, in every case, we are obliged to admit that it constitutes its essential anatomical characteristic, or at least that such is the conclusion to be derived from the cases before us. Their number, I am aware, is insufficient to establish such a point conclusively, and it therefore remains for future observers to determine whether or no the lesion we have described belongs to the disease under all circumstances. That such will be found to be the case, I confess, seems to me very probable, when I recollect that the cases we have been examining were distributed over three successive seasons, and originated, not in a single locality, but in different and widely separated places, and also that by a reference to the description of authors, it is apparent that a similar condition of the liver has been frequently observed by them, without, however, attracting that attention which it seems to me it demands. Thus we find it stated, in a dissertation on remittent fever, recently published by Dr. Shapter,* and composed no doubt after a comparison of the description of various

* See Tweedie's Library of Practical Medicine, vol. I.

authors, that "the liver is found enlarged, injected, and softened in structure, and is generally of a *dark*, sometimes of a *gray* colour."

It has been already mentioned that the characteristic alteration of the liver was, in two protracted cases, combined with a general development of the acini or lighter coloured substance. The following is the history of the case in which this was most marked.

Case IV.—Alexander Hamilton, ætat. 28, native of Massachusetts, sailor, of temperate habits, was taken sick, August 9th, 1840, on board ship, two days after leaving Mobile. He had previously enjoyed good health. Attack commenced with a chill, followed by fever, pain in the back and head, and vomiting, so that he was obliged to go to bed, and was confined to his birth during the remainder of the passage. During this time he used no medicine, (there being none on board,) and was obliged to take the common fare of sailors. He was brought to the hospital in a carriage on the 1st of September. On admission, the odour from his body was so strong, the skin harsh and covered with filth, that he was put at once into a warm bath. Emaciation very marked; features contracted; expression dull and anxious; voice feeble; skin of a dingy sallow colour; spleen distinctly felt under left false ribs, where there was soreness as well as in the right hypochondrium; pulse feeble. The spirits of mendereri were prescribed for him, but, after a few doses, there was so much sickness of stomach, the matter vomited being green, in parts a little ropy, and in quantity about half a pint, that it was omitted; the effervescing draught substituted, and a blister applied to the epigastrium. Diet, barley water and gruel. No diarrhœa. During the first ten days, his general condition was as follows. Emaciation progressive; memory defective; intellectual faculties feeble; no delirium or incoherence; answers without hesitation; sight and hearing seem to be unaffected; some headache at first; no epistaxis; tongue pale, the paleness progressively increasing, generally dry posteriorly and in the centre; thirst considerable; pulse always feeble, its frequency and volume varying considerably, sometimes connected with increased heat of skin. These febrile exacerbations were more marked on certain days than others, but whether there was any regularity in this respect, I cannot certainly say. Skin generally rather harsh; no cough; no diarrhœa; bowels occasionally opened by enemata; vomiting of a glairy thin fluid occasionally; tenderness of epigastrium; abdomen rather retracted; no rose coloured spots. He took a moderate quantity of wine whey, with occasionally a little opium. On the 9th, some chicken soup and calf's foot jelly were directed, which he relished very much for a few days and then took with indifference. About this period diarrhœa came on, the stools at times involuntary, and the urine, which was high coloured and of a strong odour, was drawn off by the catheter. The emaciation continued to progress, the skin became more shrivelled, and the yellow tint more marked, with slight wandering of mind and trembling of hands. He lay with his legs drawn up, sometimes on the side and sometimes on the back. There

was generally more or less soreness of the epigastrium, and a few days before his death, upon careful examination, it was found that the percussion was dull below the false ribs on the right side and near the median line, in a space about two inches in height by rather less in breadth, where the resistance was much greater than on the corresponding part of the opposite side, and the tenderness also very great, but no distinct tumour was felt. During the last few days of his life, no new symptoms appeared; the strength failed; the skin became of a more leaden aspect; there was no recurrence of vomiting; stools involuntary, with retention of urine; slight nocturnal delirium, one or two nights before the fatal termination, which took place on the 20th of September, forty-three days from the commencement of the disease.

Autopsy—September 21st.—Great emaciation; no œdema, except in perineum and scrotum, which was much distended by effusion of air and serum.

Brain pale externally, especially over anterior lobes; posteriorly veins somewhat injected. Arachnoid easily raised, transparent, though slightly injected, and, over the anterior lobes, elevated in spots by small air bubbles, giving it a granular appearance. The white and cineritious substances distinct, throughout firm and of natural colour; scarcely a drachm of fluid in the lateral ventricles, none elsewhere. Cerebellum natural.

Chest.—Half a pint of bloody fluid in each pleural cavity; slight old adhesions on left side. *Lungs* perfectly supple; more or less emphysematous throughout; pale in the upper, and reddish brown in the lower lobes; no tubercles or other lesions. Heart softened and extremely flaccid, its walls of natural thickness. Upon removing it from its attachments, a quantity of fluid blood issued; the right cavities contained a very small quantity of thin, red, watery fluid, with a very small fibrinous coagulum; their lining membrane of a deep red colour throughout, approaching to black near the valves; same appearances presented in left cavities, but less marked; valves supple and otherwise natural; the lining membrane of the aorta and pulmonary artery, and their valves, which were supple and otherwise natural, had the same red colour; surface of this membrane smooth.

Abdomen.—All the solid viscera flaccid and much softened. The peritoneal covering of part of the gall bladder, as well as that of some of the intestinal folds in its vicinity, of a rose colour; the folds glued together by a false membrane, which was also effused upon the surface of the gall bladder. *Stomach* considerably enlarged, containing about three ounces of dark, dirty brown fluid. At its larger extremity the parietes felt thin; the mucous membrane was smooth and shining; a portion of it dyed red in large patches and along the course of the vessels; raised without difficulty in short strips; its thickness not remarkable. The lining membrane of the rest of the organ was of a pale slate colour, slightly corrugated along the great curvature, and, everywhere mamelonated, most markedly so towards the pylorus; its thick-

ness and firmness evidently increased, more easily raised into strips than natural; no vascular injection or ulceration. The inner surface of the *duodenum* rough, owing to the development of the mucous follicles with which it was thickly studded for about eight inches; its mucous membrane softened and thickened, as was also that of the whole small intestine, which presented nowhere any ulceratiou or injection, and, in its lower part, was remarkably pale. In the upper portion were a few diffused blackish patches, over which the mucous membrane was thinner and softer than elsewhere. Glands of Peyer distinct, neither elevated nor injected. The solitary glands unusually developed in the last two feet of the ileum. The large intestine presented nothing worthy of note. *Liver* of natural size, 11 inches long by 9 broad; its proper coat readily raised up. The surface of the liver, when deprived of its coat, presented a shagreened appearance, evidently owing to hypertrophy of the lighter coloured substance; and was of a pale, slightly greenish lead colour, with a tinge of brown. A section presented the same characters, except that the shagreened appearance was less evident, the distinction of colour between the two substances being more slight. This condition of things uniform throughout, except that it is most marked in the left lobe, where the surface is rough and the natural reddish brown hue nearly extinct. *Gall-bladder* contained a large quantity of thin bile, mixed with a grumous deposit, some of which adhered to the inner surface of the organ, whose mucous coat was thin, soft, readily detached from the adjacent coat, and devoid, in part, of its honeycomb appearance. *Spleen* exceedingly soft and pulpy; of the colour of lees of red wine; 7 inches in length by 4 in breadth, and 2 in thickness. *Kidneys.*—Their substance easily broken up; their cut surfaces presenting an ecchymosed appearance, particularly along the boundary between the cortical and tubular portions, and most marked in the left kidney. The bladder was distended by at least a pint and a half of deep coloured urine; its muscular coat greatly developed. The disease here commenced with the usual symptoms, chill followed by fever, pain in the head and back, and vomiting, and was no doubt aggravated during the first three weeks by bad diet and the want of proper attendance. He was admitted into the hospital on the twenty-third day of his disease, and, during the remaining three weeks, the remissions were comparatively obscure; the emaciation progressive; the skin at first sallow, becoming more and more yellow; the stomach irritable, with tenderness at the epigastrium; enlargement and tenderness in the region of the spleen, with absence of diarrhœa, until within the last ten or twelve days, and with only slight nocturnal delirium for a day or two before his death. Upon examination, the same general appearances are found as in the preceding cases, the spleen enlarged and softened; the stomach presenting evident marks of inflammation; the liver of a pale slightly greenish lead colour, with a tinge of brown; the acini at the same time being developed so as to give it a shagreened appearance. This latter must be regarded as commencing cirrhosis and is

particularly interesting, when we consider that it was found only in those cases where the disease was protracted, or at most was but faintly traceable in one or two others, and that fully formed cirrhosis is so frequently met with in those who die after suffering for a long time from the effects of marsh fevers. These considerations give a new importance to the primary lesion of the liver which I have described, inasmuch as they seem to show that its natural tendency, when long continued, is to pass into cirrhosis, and thus lay the foundation of some of those chronic disorders to which the disease frequently gives rise.

The inflammation of the gall bladder and the peritoneal covering of the neighbouring intestinal folds, was evidently recent, and probably developed during the latter stages of the disease, at least no distinct evidences of its existence were observed until within a few days of the patient's death. With the exception of the thickening and softening of the mucous membrane of the small intestine, the commencement of which cannot be dated farther back than about two weeks before death, within which period diarrhœa first made its appearance, the remaining lesions were similar to those found in the preceding cases. The general flaccidity and softening of the organs, however, appear to have been marked more in the present instance. The perfect healthiness of the glands of Peyer is particularly worthy of note, on account of the altered condition of the mucous membrane of the small intestine generally, and the long continuance of the disease.

Having already stated that the lesion of the liver to which I have so often alluded, was found in every case of remitting fever which I have examined, I must now mention, in order that the reader may have an opportunity of forming his own judgment, that the organ was found nearly healthy in the case of an individual who at the time of his admission was supposed to be labouring under remitting fever; a supposition, however, which the subsequent course of the symptoms was calculated to render doubtful. The following is its history:—

Case V.—Wm. Jones, ætat. 23, born in Pennsylvania, seaman, entered the hospital Oct. 3d, 1840. He stated that he had recently arrived from Richmond, Virginia, and that whilst on board the vessel in the Schuylkill, on the 28th of September, six days before admission, he had been taken with pain in the head and back, chilliness, loss of appetite, and weakness. On the third day he had a chill followed by fever, and the next day but one by another chill; since then has had no chill, but constant fever, pain in his head, and thirst; was confined to his bed. On the 3d, the day of admission, he was very feeble; expression dull and dejected; answers slow; memory rather defective, complained of pain in the head and epigastrium; pulse feeble and frequent; skin warm; no vomiting; bowels confined. Has taken one or two doses of salts, during the first week of his illness. A dose of blue mass and rhubarb was administered, which operated slightly. In

the evening he was very restless, would not keep the clothes on his bed, and was slightly delirious.

On the 4th, very dull; extremities cool; pulse feeble and frequent; tongue very dry, and covered with a thick brown crust, as since entrance. Mustard to legs, enema of spirits of turpentine, sulph. of quinine, gr. viii, by the mouth.

At night the extremities were rather warmer, but the dulness of intellect, restlessness, and delirium persisted; the sinapism had not reddened the skin after five or six hours. ℞. Calomel, Rhei āā, gr. x.

On the 5th, same symptoms, only more intense, when a blister was applied to the epigastrium, the sulphate of quinine repeated, and small doses of calomel and opium given every two hours. In the evening sinapisms were again applied to the legs.

6th.—So delirious last night that he was confined in bed; is now muttering; stupor marked; complexion very slightly sallow; conjunctiva a good deal injected, very slightly yellow; forehead moist; skin of arms cool, of trunk moderately warm, soft; pulse 114, small and feeble; tongue dry, chapped, brown; impulse of heart strong, as well as sounds; respiration natural anteriorly; belly retracted; spleen distinct below ribs, the dulness on percussion extending laterally upwards for full three inches; vomited a dose of effervescing mixture this morning; stools in bed, liquid, brown, and fœtid. ℞. Liq. ammoniæ acet. ℥ss. every two hours.

On the following morning, the intelligence was much clearer, the pulse fuller, but still about the same frequency; tongue moist, clean around the edges, crust separating; restlessness diminished; stools voided in bed as previously. Cal. et op. continued, with liq. acetat. ammon. and sulph. quinine. In the evening rennet whey.

8th.—Same condition; tongue cleaner; prostration marked. Omit cal. et op., and continue rennet whey.

From this time Jones became gradually weaker; his features sunken; no decided sallowness, but rather a leaden hue of complexion; the delirium continued, at times muttering, at others more active, on the last day declining into stupor, when his features were collapsed; hearing most remarkably dull, constant tremulousness of hands, which, together with the feet, were cold; no subsultus; pulse very frequent, small, and feeble; no vomiting, as throughout illness, except on the morning of the 6th; belly retracted, as before; no marked tenderness at epigastrium; urine passed in bed; the stools continued involuntary. Moderate doses of wine whey and other stimulants were given internally, poultices to legs, body rubbed with warm brandy, &c. In the course of the disease, also, a blister was applied to the back of the neck. He died on the evening of the 11th, at 11 o'clock.

Autopsy. Exterior.—Moderate rigidity and emaciation. Muscles dark.

Head. Veins of dura mater moderately injected; considerable sub-arachnoid effusion, especially at left; veins between convolutions much engorged

at left, moderately so at right; on the upper surface of the left anterior lobe, the arachnoid was brilliantly red, and upon raising up the membranes, they were found to be adherent to the surface below, which in part was slightly torn; at right anteriorly the injection was slight, and the adherence less; on the middle and posterior lobes of the left side, the pia mater is more injected than at right, the injection extending between the convolutions; it is also adherent, though less so than anteriorly, but more so than on the corresponding lobes of the opposite side; the whole upper surface of the brain at left, was less consistent than at right; internal parts of brain presented nothing remarkable; red points numerous; two teaspoonfuls of clear water in lateral ventricles; about an ounce of effusion at the base of the brain; nothing else worthy of note.

Chest.—No adhesions or effusion in right pleura. Upper lobe of right lung supple, pale; its cells dilated; the middle lobe is solidified, reddish brown, granulated, sinks in water, is easily penetrated, and, when pressed, gives exit to a large quantity of dirty-coloured purulent matter; the lower lobe supple, crepitating, of natural texture, containing black blood. *Left lung* adherent throughout, supple, crepitating, without consolidation, reddish brown, posteriorly livid. No effusion into pericardium, or adhesions. Heart of natural size, containing firm fibrinous coagula; its walls firm; its lining membrane and valves natural.

Abdomen.—*Stomach* containing a dark greenish fluid; its capacity not remarkable. The whole mucous membrane is covered with a thick tenacious mucus; in the great cul-de-sac and larger curvature it is thrown into rugæ, which are ecchymosed in the former, of a yellowish green in the great curvature, the intervening membrane grayish, and covered with numerous red points; in the great cul-de-sac the mucous membrane is thickened, and slightly softened, the same throughout, the consistence increasing and becoming firmer than natural as you advance towards the pylorus; in the pyloric fourth of the stomach, the mucous membrane is of a darker colour, which penetrates to the peritoneal coat, and the mucous follicles are remarkably developed. Mucous follicles of *duodenum* greatly developed. The whole small intestine contains a pasty mucous, of an olive colour, with which also the mucous membrane is deeply dyed except in the lower part of the ileum, where the contents, as well as the membrane, are of a reddish brown; thickness of the mucous coat natural; no ulcerations in any part; the plaques of Peyer not remarkable, until within a few feet of the termination of the ileum, where they are of a deep reddish brown, almost livid, darker than the surrounding mucous membrane, a little elevated, especially the last one, near the ilio-cœcal valve, the elevation being due to swelling of their mucous membrane, the sub-mucous tissue presenting no marks of alteration, and the glands in other respects being natural; the mucous membrane generally of this lower part of the intestine was injected for about a foot and a half. *Large intestine* contains a large quantity of greenish coloured, soft

matter; nothing else remarkable. *Liver*—upper surface reddish brown, mottled; same reddish brown internally; rather firmer than natural; two substances very distinct, the light preponderating, somewhat like commencing cirrhosis; size about natural. *Gall-bladder* 4½ inches long, by 2⅛ broad, filled with very thin bister coloured bile, with scarcely a trace of greenish or orange even when spread out in a thin layer; its mucous membrane natural, of a deep olive. *Spleen* double its natural size, somewhat softened, not pultaceous, of a reddish brown. *Kidneys* nothing remarkable; commencing granular appearance in the right one.

The statement of the patient in reference to the circumstances of his attack, the chill repeated after a period of 48 hours, &c., together with the absence of decided evidences of any other disease, led at first to the supposition that the above case was, as has already been mentioned, one of remittent fever. The subsequent course of the symptoms, however, did not at all accord with this view. Thus the delirium, which was present on the evening of the day of admission, persisted on the following evening, accompanied with a tendency to stupor, and, during the night of the 5th, was so violent that the patient was kept in bed by force. On the morning of the 6th, there was muttering and marked stupor, and except that the intelligence was clearer during the two following days, the delirium continued, at times muttering and at others more active, declining on the last day into stupor. The pulse was frequent and feeble, the stools involuntary; the skin without decided sallowness, much less yellowness, notwithstanding the continuance of the disease fourteen days. There was no vomiting, except on the 6th, and that after a dose of medicine; the tongue was dry, brown, and, during the last days of his life, there was constant tremulousness of the hands, which, as well as the feet, were cold. These symptoms, especially the permanency and character of the cerebral disturbance, the frequency and feebleness of the pulse, much more nearly resembled those of meningitis than of remittent. On examination after death, undoubted evidences of inflammation are found on the convex surface of the brain, especially of the left anterior lobe, the superficial layer of cerebral substance bein soften o the same side. Along with the evidences of meningeal inflammation, there was not only absence of the peculiar alteration of the liver, but also of other changes belonging to remitting fever. Thus there were firm fibrinous coagula in the heart, a condition not once found in the cases of remittent; and, although the spleen was moderately enlarged and ftened, it aspect was totally different from the dark-coloured pultaceous mass observed in the other cases mentioned. Besides, enlargement and softening of the spleen, as well as the inflammation of the mucous membrane of the stomach and other secondary lesions found in the present instance, are found more or less frequently in meningitis as well as in other acute inflammatory affections. If then we consider the accordance of the symptoms with those of meningitis, the evidences of this inflammation after death, with the absence not merely of the

lesion of the liver, but of other alterations usually observed in remittent fever, I think we can have little difficulty in admitting that the case must be regarded as one of meningitis. If any one should feel disposed to look upon the latter as a mere complication, let him recollect that the dulness, delirium, feeble and frequent pulse, &c., were present as early as the sixth day, the period of admission; that the subsequent course of the disease was in accordance with that of simple meningitis, there being an absence of symptoms characteristic of any other affection; and that the previous history of the case (the perfect accuracy of which we cannot rely upon, as the patient was dull and his memory defective) is not at variance with the interpretation we have adopted, as the repetition of the chill at a regular interval is occasionally found at the commencement of various acute diseases. That it was not a case of typhoid fever is sufficiently evident from the absence of lesion in the glands of Peyer, other at least than a deep red colour with a little elevation of a few of them, the mucous coat only being involved in common with that around them.

The above case then does not invalidate the truth of the statement, that the alteration of the liver was found in every case. It affords an example of the danger, during a time of general prevalence of any particular disease, of too hastily classing with the prevailing affection every case, especially if, as in the present instance, rather obscure, which may offer some analogous features. And, further, had not the condition of all the principal organs been observed and recorded, so as to afford the means of a careful comparison with the symptoms, the case might readily have been regarded as one of anomalous remittent, in which the characteristic alteration of the liver was absent.

Whatever may be the results of future observation in reference to the constant occurrence of this lesion, and even if the conclusion to which I have arrived, that it constitutes the *essential* anatomical characteristic of remittent fever, be found erroneous, owing to its absence in a certain portion of cases, it is still worthy of attention. It certainly constitutes a most peculiar and important anatomical feature of the disease. Its connection with certain symptoms during the early and middle period of the disease, its tendency to pass into cirrhosis in protracted cases, and thus lay the foundation of certain chronic organic alterations, abdominal effusion, &c., and the assistance it must afford in determining in fatal cases the diagnosis between remittent and other fevers, are sufficient to convince us of its claims upon our attention. The striking difference between it and the alteration of the liver which belongs to yellow fever is particularly interesting, especially as it was found quite as strongly marked in the case which most nearly approached to the latter disease, as in any of the others. Whilst in remittent the liver is of a dull bronze or between a gray and olive, in yellow fever it is pale and of various shades of yellow, as straw yellow, gum yellow, &c. In typhoid fever the liver appears to present no other change of colour than

what arises from an increase or diminution of the red tint, being sometimes of a darker red, at others paler than natural.

Before concluding this part of the subject, I will mention that in the only case of marsh fever examined during the past season at the Blockley Hospital, under the charge of my friend Dr. Gerhard, the liver, which was submitted to my inspection, presented the same peculiar characters already described as belonging to remittent fever.

Gall-bladder.—Contrary to what occurs in yellow fever, the bile was most commonly abundant. In one instance, however, there was only an ounce of this fluid in the gall-bladder, which was contracted also in another. Not only was the bile abundant, but commonly fluid and quite thin. There was nothing uniform in the colour. With the exception of the case already detailed (case IV), in which the gall-bladder was the seat of recent inflammation, the organ appears to have presented no lesion of importance. In one case, however, its condition was not noticed.

Spleen.—This organ was enlarged and softened in every instance, and generally to a great degree. Thus in three cases, where the measurements are given, it was about seven inches long by from four to five broad, and in three others the lowest degree of enlargement is stated at from four to five times the natural size. In the seventh the degree of enlargement is not noted. The softening also was great, amounting generally to pulpiness, and as the colour was dark, the aspect of the organ was frequently very much that of a sac containing black clotted venous blood. Mere enlargement and softening of the spleen are not at all peculiar to remittent fever, inasmuch as they are found in various acute diseases, especially in typhoid fever, where the spleen is almost always increased in size, and very generally softened. There appears to be this peculiarity, however, in the disease before us, viz., that the enlargement and softening were not only constant, but uniformly considerable in amount. When we consider this circumstance in connection with the fact that the lesion of the spleen is often accompanied in remittent fever with pain and tenderness in the left hypochondrium, we are obliged to admit that it is not altogether similar to that found in other diseases, especially typhoid fever. At the same time there is nothing in the appearance of the organ to distinguish it in individual cases from an analogous alteration occurring in other diseases. Upon comparing the condition of the spleen in remittent with that observed in yellow fever, we again find a striking difference between these two diseases, for in the latter the organ is remarkable for its almost uniform freedom from any considerable morbid alteration.

Stomach.—Variable in size, it contained in three of the five cases in which its contents are noted, a dark or dirty brown fluid, and in the two others, a bright yellow, or yellowish green matter. In five of the six cases in which the condition of the mucous coat is particularly noted, marks of inflammation were present, the membrane being mamelonated in three; thickened in two; thinned throughout in one, in the great cul-de-sac in an-

other; softened throughout in one, especially along the great curvature in another, the softening limited to the great cul-de-sac in a third; firmer than natural in two. The colour in one case was between bister and olive, with a mixture of red in the great cul-de-sac; in another of a pale slate colour, except in great cul-de-sac, where it was dyed red in large patches, and along course of vessels. In one it was covered with a thick coat of tenacious mucus, in another with patches of lymph, giving it the appearance of being daubed with white paint. These various alterations were so combined as to leave little doubt of the presence of inflammation in the five cases mentioned. In the sixth the mucous membrane was of natural colour, except along its folds, which were of a deep orange yellow; its consistence and thickness diminished in the great cul-de-sac, elsewhere natural, except that it was rather friable. So that if in this case the mucous membrane was not perfectly healthy, there are at least no evidences of its having been the seat of inflammation. It was in this case that the disease approached so nearly to intermittent.

This frequency of inflammation of the stomach is very analogous to what is observed in yellow fever, but much greater than in typhoid fever, whilst at the same time the gastric symptoms are much more prominent in remittent than in the latter disease. The following is an example of the lesion under consideration.

Case VI.—Horace Foster, ætat. 22, born in New Jersey, seaman, of moderately temperate habits, entered Aug. 14th. Attacked Aug. 10th, in Philadelphia, having arrived a short time before from Wilmington, North Carolina, with headache, and vomiting of bitter matter, accompanied with severe pain and distress at the epigastrium.

On admission, Aug. 14, cephalalgia, uneasiness at epigastrium, and nausea; not much activity of pulse, or heat of skin. An abundant eruption of urticaria on body and limbs; a similar eruption had shown itself and disappeared, during the four days previous to admission. An emetic of ipecac. gr. xx, was administered, and on the following morning the skin was soft and natural, the pulse good, and the gastric symptoms much relieved; eruption entirely gone, intellect perfect. In the evening he complained of nausea and oppression at the stomach, when a dose of calomel and ipecacuanha was administered, followed by an opiate, and three scarified cups applied to the epigastrium. On the 16th, the epigastric symptoms had not notably diminished, and the tenderness on pressure was considerable; bowels freely opened. Eight ounces of blood were taken by leeches from the epigastrium, and immediately afterwards wishing to evacuate his bowels, and being placed upon the chair at his bedside, he fainted, and was slightly convulsed. In about three minutes he was laid in bed, when his sensibility gradually returned, but the extremities were very cold, and so continued on the 17th, when they were rubbed with oil of turpentine, and 20 grs. of quinine with 30 drops of laudanum, given by enema. A blister also was applied to the

epigastrium, and pills of blue mass and rhubarb ordered every two hours. About this time the skin began to become more yellow, and the intelligence to get dull. On the 18th, cold was applied to the head, and grs. xii, of sulph. of quinine given by the mouth. On the 19th, the extremities, which had not yet regained their natural heat, though much warmer than on the 17th, were excited by sinapisms, and in the evening quinine was again thrown into the rectum. A blister was applied to the back of the neck. At this time insensibility was almost complete, and, the symptoms gradually increasing, he died early on the 20th.

The following account of the autopsy, made twelve hours after death, was drawn up by Dr. Stillé:—Skin everywhere yellow, ecchymosed stripes in depending parts; rigidity marked; abdomen flat and hard; muscles of trunk dark red; strongly developed and firm; fat abundant and firm. *Brain* of an ashen hue; a little injection, and slight opacity in several points of arachnoid along longitudinal sinus; no pus, no sub-arachnoid effusion; no adhesions of pia mater to brain; cortical substance dark and distinct; medullary milk white, studded with a few bloody points on section, soft, pasty, and very dry; not a drop of fluid in ventricles; all central parts of the brain very distinct, but soft; not pulpy, but pasty; half an ounce of bloody serum at base.

Chest.—Lungs free; left, ash coloured, crepitant, but a little dark posteriorly; summit of middle lobe of right, firm, friable, dark red, section granular, containing but little air. *Heart* firm and pale; from the veins flowed a thin red liquid, mixed with soft, clear yellow clots; same kind of blood and clots in ventricles; valves natural; aorta lemon yellow.

Abdomen.—Intestines moderately distended, of a dingy ash colour and pasty feel. *Spleen* about 7 in. by 5, and 2½ thick, soft, dark, friable. *Liver* heavy, rather large, smooth, of a dull bronze colour; section very smooth, component parts indistinct; consistence nearly natural, a little soft; its blood very thin and serous. *Gall bladder* distended with a thin granular fluid, which, when in bubbles, presented a deep orange hue; mucous coat of a deep bronze. *Stomach* long, narrow, yellow, containing nearly its full of dirty brown liquid; internal surface covered with a thick coat of yellowish brown tenacious mucus; mucous membrane corrugated in the middle, smooth at either end, everywhere thickened, consistence natural in the great cul-de-sac, much increased in the middle and lower end; no injection, or ulceration. *Duodenum* studded with minute elevated round bodies, half a line in diameter, with a dark central point. (Brunner's glands.) *Intestine* contained an orange coloured pultaceous matter; valvulæ conniventes remarkably distinct; mucous membrane natural, without injection or softening, perhaps slightly thickened. Peyer's glands very distinct in lower two-thirds of intestine, honey-combed, *i. e.* dotted with depressed dark points, their outline well marked, their sub-mucous cellular tissue not hypertrophied, and neither they nor it injected; no ulcerations; mesenteric glands natural. *Large intestine* distended moderately, contents pale and

pasty, not yellow; nothing else remarkable. *Bladder* distended by half a pint of orange coloured clear urine.

Attacked four day previous to admission with headache, vomiting, pain and distress at the epigastrium; this patient entered the hospital on the fifth day of the disease, or at the commencement of the third tertian period. Besides the headache, gastric symptoms, slight activity of the pulse and heat of skin, there was a general eruption of urticaria, which had been present for a time previous to admission, probably during the preceding exacerbation. An emetic of ipecacuanha being administered, on the following morning the symptoms were so much abated, as to give the appearance of convalescence, an effect doubtless owing much less to the action of the emetic than to the natural termination of the exacerbation, for in the evening the gastric symptoms returned, and, notwithstanding the repetition of the emetic combined with calomel, assisted by topical depletion to the epigastrium and followed by an opiate, they had not on the following morning notably abated, whilst the tenderness was considerable. Subsequently, the remissions were less marked, and indeed, from the imperfection of the notes, (they not having been taken at the bedside,) it is impossible to follow them. About the eighth day the skin became more yellow, the intelligence dull, the extremities were cold as on the previous day, and never afterwards regained entirely their natural warmth. He died on the eleventh day, and on examination we find the liver heavy, of a dull bronze colour, its section very smooth, the component parts indistinct; the spleen enlarged, dark and soft; the stomach yellow, contracted, its mucous coat covered with a thick layer of yellowish brown tenacious mucus, every where thickened, and firmer than natural in the middle and lower portions; the other organs presenting no important alteration. Here again we have the same general condition as in the other cases, with the absence of those lesions which are essentially characteristic either of yellow or typhoid fever.

The more or less frequent presence of inflammation of the stomach in various fevers and other acute diseases, is a fact now so well understood, that it is hardly necessary to attempt to refute the opinion which would refer remittent fever to gastritis as its cause. Indeed, not to speak of its absence in one of our cases, (which might be objected to, as its type was perhaps intermittent,) every one will admit that it is impossible to explain all the symptoms by means of the inflammation of the stomach alone. It then follows, in order that we may be able to account for some of the most characteristic symptoms, that the inflammation of the stomach *necessarily* gives rise to some other lesions on which these symptoms directly depend. Now the only other important and uniform lesions were a peculiar alteration of the liver and enlargement with softening of the spleen, and, if these were a mere consequence of the gastritis, why are they not produced under other circumstances where this inflammation exists? Why, in yellow fever, where gastritis is so frequent, is the alteration of the liver so different, and

the spleen so exempt from disease? Besides, in the case above referred to, where the stomach does not appear to have been the seat of inflammation, the liver and spleen presented the same lesions as in the other cases.

Duodenum.—The mucous membrane, although not accurately described in every case, seems to have presented nothing worthy of especial mention, except that it was thickened and softened in one instance in common with that of the small intestine generally. Its mucous follicles, or glands of Brunner, however, were remarkably distinct in all the six cases where the duodenum was particularly mentioned. To say that the development of these bodies was anormal in every instance, would perhaps be going too far, but there can be little doubt that it was so in most. In two instances it was accompanied by a similar enlargement of these bodies in other parts of the small intestine, an example of which will be found in the following case, which occurred in November last, after the expiration of my annual term of duty, and for an account of which I am indebted to Dr. Stillé.

Case VII.—William Branch, a seaman, ætat. 25, was brought to the hospital, November 12th, 1840, about 11 A. M. Between 12 and 1 P. M., I was called to see him in the absence of Dr. Stocker. He was pulseless, his extremities cold, his face pale and somewhat blueish, his eye rolling vacantly, pupil dilated; his whole body agitated, turning from side to side; he appeared to listen to questions, but made no articulate reply. Abdomen not distended; the skin over it vesicated. I was told that the persons who had brought him to the hospital, had stated that he had the "Southern fever," but I could learn nothing more concerning him. Stimulating poultices were ordered to extremities, an emulsion of turpentine was given per anum, his body was rubbed with spirits, and some brandy forced down his throat. He struggled violently against receiving the enema, but did not, I believe, speak intelligibly. No change for the better took place, and he died about 4 P. M. of the same day.

Autopsy twenty-four hours after death, in clear, cold weather. Stature about 5 feet 7 inches; rigidity marked; surface pale; a few ecchymosed spots in depending parts; no emaciation; cuticle of abdomen raised, as if by a blister; face not distorted; muscles firm, of full development, and dark red colour; sub-cutaneous fat a quarter of an inch thick.

Chest.—*Lungs* crepitant, dark on their posterior faces, without hepatization; pleuræ smooth and not injected. *Heart* about as large as fist of subject; its muscle firm; the cavities containing one or two small, fibrinous semi-transparent coagula, of a greenish hue; valves healthy. Blood in veins liquid and dark.

Abdomen.—No effusion. Omentum olive coloured; many folds of the small intestine of the same colour. Mesenteric glands small, not injected. Peyer's glands not developed; solitary follicles much so, in the whole length of the small intestine, but notably in the duodenum, in the first two inches of which they were set so closely together as to give to the mucous surface

the appearance of a grater. *Stomach* inflated, half filled with a yellowish green pasty fluid; mucous membrane soft and thin in the great cul-de-sac, elsewhere firm, rough, mamelonated, and covered with patches of lymph, looking as if they had been made by applying white paint here and there with a brush. *Spleen* 7 inches long, 4 broad, and 3 in thickness, of a rounded form and very soft. The *liver* filled the right hypochondrium, the epigastrium, and a portion of the left hypochondrium, where its peritoneal coat was adherent to that of the spleen. Its length was 16 inches, its breadth 8, and its greatest thickness 3 inches; it was very heavy; over its surface ramified a number of fine silvery vessels, supposed lymphatics; its colour was between a brown and an olive, the latter being predominant and chiefly given by the parenchyma, the former by an infinite number of small round spots about half a line in diameter. A section of its substance was smooth and glistening, and offered the same colour and distribution of parts as the surface. Its texture was moderately firm, the finger penetrating it readily. Its large veins contained liquid and dark blood. *Gall-bladder* not noted.

Notwithstanding that the patient was seen only a few hours before death, and that we are perfectly ignorant of his previous history, beyond the mere fact that he was a seaman, and supposed by those who brought him to the hospital to be labouring under "Southern fever," we can have no doubt that their view of the case was correct; for not only did the concluding symptoms correspond to those of pernicious remittent, but, after death, the same lesions were found as in the other cases. The liver was much enlarged; its colour between brown and olive, the latter predominating; its section smooth and glistening; the spleen very much enlarged and softened, and the mucous membrane of the stomach inflamed, being rough, mamelonated, and covered with patches of lymph, except in the great cul-de-sac, where it was thinned and softened. The development of the isolated follicles, instead of being limited to the duodenum, where, however, it was most marked, was not only very decided, but existed throughout the whole length of the small intestine. The glands of Peyer were healthy.

No especial importance can of course be attached to the simple enlargement of the isolated follicles, which is common to a number of diseases, without our being able to associate it with any particular symptoms. It is, however, well worthy of attention, that, in the cases before us, there seems to have been a remarkable tendency to the enlargement of these bodies in the duodenum.

Small intestine.—No lesion of importance was found in this organ in any case, if we except the one where its mucous membrane was throughout softened and thickened, in which case, it will be recollected, the disease was very protracted, and accompanied towards the close by diarrhœa. The glands of Peyer were uniformly healthy. In two cases the isolated follicles were unusually developed; in one of them (the case last detailed) throughout

the whole extent of the small intestine; in the other, in the last two feet of the ileum. The contents, where noted, were of an orange colour.

Large intestine.—In one case its condition is not mentioned. In five others, it was healthy or offered nothing worthy of note. In the seventh, where the disease was complicated with severe dysentery, the mucous membrane was softened and studded with numerous ulcerations, some of them extending as deep as the muscular coat, which, together with the sub-mucous tissue, was thickened.

Case VIII.—Susan Queen, ætat. 28, unmarried, a domestic, born in Ireland, entered the hospital Oct. 6th, 1840. She had been about a year and a half in America, and during the greater part of that time had resided in New York, but subsequently went to Savannah in Georgia, where she was attacked with her present illness about a month or six weeks ago. No satisfactory account was obtained of her symptoms previous to admission. The following is the general character of her symptoms during the week which elapsed between her admission and the fatal termination.

The skin, sallow at the time of her entrance, became more and more yellow as the disease advanced. Emaciation extreme; features very much contracted; mind feeble, but no delirium, until within a few days of her death: constant moaning; prostration extreme; lay mostly on the right side, with the legs drawn up; pulse small and feeble; tongue covered with dark brown fur; no difficulty of deglutition; abdomen hard and tender on pressure; no vomiting; no appetite; eight to twelve stools in 24 hours, at times bloody and watery, at others yellowish but fluid, of a very penetrating and sickening odour. On the 6th, the day of her admission, a grain of acetate of lead and one-fourth gr. of opium were directed to be given three times a day. On the following morning, however, as the pulse was more active and frequent, the skin hot, and the tenderness of the abdomen on pressure was considerable, the pills were omitted, and a blister six inches square was directed to the abdomen. In the course of the day an enema of cold flaxseed tea was also prescribed, and in the evening one of sixty drops of laudanum. Subsequently she was put upon the use of calomel and opium in small doses, and on the evening of the 9th it was thought necessary to stimulate her with milk punch. She died on the 13th, at 5 in the morning.

Autopsy, 31 hours after death.

Brain.—Dura mater pale. Arachnoid smooth, transparent, some infiltration beneath. Veins of pia mater containing but a moderate quantity of blood; red injection natural, or rather less than natural. Membranes easily raised from the convolutions. The two substances of the brain very distinct; the cortical of a deep colour; both of natural consistence, quite firm, the medullary having a pasty feel; the red clots not remarkable. Scarcely any serum in the ventricles. Cerebellum natural.

Chest.—Old adhesions at the summit of the left lung; none at right. Both

lungs were supple and crepitating throughout, and presented nothing worthy of note. The *pericardium* contained a small quantity of serum. The *heart* was of moderate size and flabby. Its right ventricle contained a considerable quantity of black coagula, mixed with red serum; the lining membrane, and still more so that of the auricle and the auriculo-ventricular valves, of a deep violet colour, smooth and without opacity. The same colour at left, but much less marked, as also in the pulmonary artery, and the aorta, at their origin. All the valves supple.

Abdomen.—The *stomach* contained two ounces of bright yellow semi-fluid matter. Venous arborescence in the great cul-de-sac; no other injection. The mucous membrane was mamelonated along the great curvature, everywhere thinned and softened, except near the pylorus, where it was of good consistence and natural thickness. No ulceration. The mucous membrane of the *duodenum* was a little softened, but otherwise natural; the glands of Brunner much developed, especially near the orifice of the stomach. The *small intestine* contained a considerable quantity of orange coloured matter throughout its whole extent. The mucous membrane was more or less of the same colour until after it had been frequently washed. when it offered its usual pale appearance; its thickness and consistence natural, except near the ileo-cœcal valve, where it was a little softened, but pale; Peyer's glands perfectly natural. The *large intestine* contained a quantity of chocolate coloured fæces. Its walls were very thick, chiefly owing to the thickening of the muscular and sub-mucous coats. Mucous membrane studded with an immense number of ulcerations, varying in size from that of a small pea to that of a bean, rounded or oval, in some limited to the mucous coat, in others extending to the muscular. These ulcerations were more numerous and larger, as we approached the termination of the rectum, but extended throughout the whole tract of the intestine. The intervening mucous membrane was opaque, not varying decidedly from its natural colour, except by a slight admixture of slate colour, with here and there a spot of light brown; its consistence was diminished, especially in the rectum, where it also presented a granulated appearance, and was perhaps a little thinned; elsewhere its thickness was about natural. The *liver* was not remarkable in size; very flabby; its surface of a dull lead colour, except about the left lobe, where a portion of it was of the usual reddish brown hue; its colour internally bronzed with a reddish shade, the surface of a section shining, rather mottled by the unequal development of the two substances, which are not distinguishable, however, by any very distinct shades of colouring; its consistence softer than natural. The gall bladder small, containing about an ounce of fluid and moderately viscid bile, of a colour between olive and orange. The spleen enlarged, about six by four inches, very soft, pulpy, of a brownish black colour. The mesenteric glands healthy. The kidneys flabby, their cortical substance pale, but otherwise natural.

As before remarked, we were unable to obtain any satisfactory account of

the disease previous to admission. The patient was evidently labouring under dysentery, but this was not sufficient to explain all her symptoms. The circumstances under which she had been attacked, the yellowness of the skin, and perhaps something in the general aspect of the patient, were calculated to lead to the suspicion that, combined with dysentery, she was labouring under a protracted form of remittent. No distinct exacerbations of fever, however, are noted, if we except that on the morning of the sixth, when the pulse was more active than previously, and the skin hot, a circumstance, to say the least, more in accordance with the supposition of remittent, than of simple dysentery, at so late a period of the disease. Whatever doubt might have existed during life, was, however, removed by the examination after death; for, besides the thickening, ulceration, &c., of the large intestine, the mucous coat of the stomach was inflamed; the liver and spleen presented the same alterations as in the other cases of remittent, whilst the evidences of any other disease were absent. The inflammation of the large intestine, and the consequent debilitating discharges, were undoubtedly among the principal causes of death.

Mesenteric glands.—We have neglected to note their condition in three of the seven cases. In the remaining four they were healthy or without evident enlargement.

The *kidneys* were sometimes flabby, but, so far as examined, presented no lesion of importance.

In one case where it had been necessary to draw off the urine frequently by a catheter, and, where the bladder was considerably distended, its muscular coat was greatly developed.

As regards the external appearance of the bodies there is little to be said. Yellowness of the skin is mentioned in only one case, though undoubtedly it existed also in the three others where it was present during life. In one case the skin is described as pale. Emaciation was not remarkable in any except the two cases where the disease was protracted. Indeed, in one of the others the muscles are noted as being dark red, firm and fully developed, the fat abundant and firm; in another, the muscles the same, and the subcutaneous fat a quarter of an inch thick. Rigidity was marked in every case where this circumstance is alluded to.

Let us now observe, in conclusion, that, of the various lesions described in the foregoing pages, two only were constant or observed in every case, viz. that of the spleen and the peculiar alteration of the liver. We might perhaps include among the constant lesions, the development of the glands of Brunner in the duodenum, but it may admit of doubt whether these glands were really morbidly enlarged in every case, although, at the same time, their frequent enlargement and uniform distinctness constitute a striking peculiarity of the disease. Of those which were not constant, the inflammation of the stomach is unquestionably most worthy of attention, both on account of its great frequency and the importance of the organ itself. The

lesion of the spleen, though constant, was similar in appearance to that found in other diseases. It was remarkable, however, for the uniformly great degree to which it was carried, and for being frequently accompanied during life with pain on pressure in the left hypochondrium, a circumstance not usually accompanying enlargement and softening of the organ in other acute affections. The liver, on the other hand, was the seat of a morbid change, not only present in every case, but of a character not met with in other diseases, and as it was the only lesion which offered these two conditions, the conclusion is obvious that it constituted the essential anatomical characteristic of the disease, as it presented itself to our observation. As the number of cases were small, such a conclusion when viewed as a general proposition, applicable to remittent fever universally, can only be regarded as the indication of a probable truth, the full confirmation of which requires the analysis of a more extended series of observations, conducted after the same manner. I have already given my reasons for supposing that the lesion in question will probably be found to be uniformly characteristic of the disease, and also for believing that even if such should not be found to be the case, it still had strong claims upon our attention, and shall not repeat them here. It is a circumstance particularly worthy of note that the only two fevers in which yellowness of the skin is found as a principal symptom, should also be the only ones characterised by any remarkable alteration of the liver, and this consideration is certainly calculated to give to the latter additional interest and importance. I ought perhaps here to mention that I was made acquainted with the conclusions of M. Louis in reference to the anatomical characteristic of the yellow fever of Gibraltar, some years before the publication of his work on that subject, as he kindly favoured me with a perusal of the manuscript, which he placed in my hands for that purpose shortly before my leaving Paris in the year 1834. To this circumstance I am no doubt much indebted for having my attention especially directed to the condition of the liver, particularly as the very first fatal case which occurred at the Pennsylvania Hospital, after my entrance upon the duties of my station, bore a strong resemblance in many of its symptoms to yellow fever. Admitting that the lesion of the liver, which I have described, really constitutes the essential anatomical characteristic of remittent fever, are we to look to this organ as the primary seat of the disease? To this, I think, we must answer in the negative, at least so far as our information at present extends, because, in the first place, we have no evidence that the lesion is present at the very commencement of the disease, although it is highly probable that it exists at a very early stage, and, in the second, it is impossible, even if it were so, to explain by its means all the early symptoms, or, in other words, to trace them to it as to their source. In short, it seems to me, that here, as well as in typhoid and yellow fever, the characteristic anatomical lesions are to be regarded, like the pustules of small pox, as consequences and not as causes of the affections which they severally characterize, and

that we must look for the latter in some morbid condition other than what is observed in the solid organs. It is to be hoped that the investigations now going on in reference to the alterations of the blood may throw some light upon this obscure subject.

Of the causes of death but little need be said. In some cases the condition of the organs afforded a sufficient explanation of it, especially in those two, where, in addition to the lesions generally met with, there was either extensive ulceration of the large intestine, or thinning and softening of the mucous membrane of the small intestine with partial peritonitis. In others again, the lesions of the solid viscera do not appear to be sufficient, but, as the blood was altered in every case in which its condition was noted, we may reasonably conclude that the changes in this fluid played an important part in bringing about the fatal termination.

The symptoms, &c., will form the subject of a future communication.

ART. II. *Statistics of Fractures and Dislocations Treated in the Pennsylvania Hospital, during the ten years, from* 1830 *to* 1839 *inclusive.* By GEORGE W. NORRIS, M. D., one of the Surgeons to the Institution.

IN the whole range of surgical subjects, there are none of greater practical importance than those of fractures and luxations; none that require more constant care and attention for their proper treatment, and none consequently that should more frequently be urged upon the notice of the practitioner and student. During the ten years which have just elapsed, a large number of these accidents have been treated at the Pennsylvania Hospital, and without having any novelties regarding their treatment to make known, we have thought that it might not be uninteresting to the readers of the reports from this hospital to have presented to them the results obtained there during a term of years, in these important classes of injuries. As has ever been the case, surgeons are still divided in opinion as to the best method of treating fractures of the extremities. Volume after volume has been written to show the propriety of one or another mode of treatment, but in few instances only has an appeal to a large number of facts been made to justify the recommendations that have been given of them. To public institutions it is that we must principally look for statistical information in regard to these injuries, and, although our records on this subject are so imperfect as to permit us to give only general results, still we look upon them as of some interest, and have prefaced them with a concise account of the plan of treatment which has been generally adopted in these accidents, during the time mentioned.

Femur.—In the treatment of most fractures of the thigh, the straight position is preferred, and the apparatus of Desault modified, is that mostly employed. The improvement consists in the greater length of the outer splint, and the attachment to its lower end of a small block, over a notch in which the extending band passes, in order that the extension be made in a line with the axis of the limb. If the limb can be at once brought down to its natural length, it in all cases should be done on the first application of the apparatus; but when there is so much muscular contraction as to render this very painful, the limb need not be drawn to its full length at first. In these cases it should be extended as much as possible, and, at the second visit of the surgeon, should be seized at the ankle, and slowly pulled downwards, while an assistant tightens and makes fast the extending band. This course is to be repeated until the fragments are perfectly reduced, which may in most cases be readily done at the end of twelve or eighteen hours. No great advantage is believed to be gained by the employment of short splints, or bandages of any sort, applied immediately to the thigh, and their use is dispensed with, as they prevent the surgeon from accurately examining the state of the fracture, and require that the limb should be disturbed in order to re-apply them. A long narrow bag, stuffed pretty firmly with cotton, and covered with buckskin, is used for the counter-extending band; and a double buckskin gaiter, with a thin layer of carded cotton laid over it, or a buckskin band lined with linen, is made use of for the extension. Extension violent enough to cause pain should never be made use of; it ought always to be moderate, steady, and permanent. If constant pain is complained of at any point on which the dressings press, it should be immediately examined and re-adjusted. The restlessness of patients causes any apparatus to be easily displaced, and it is therefore necessary to smooth, tighten, and carefully re-examine it daily. Excoriation of the heel is most frequently produced by want of care in not having the extending band smoothly applied to the part, or by tightening it in too great a degree without having previously drawn down the limb with the hand. Sometimes, however, excoriation is caused by the weight of the foot alone; and in these cases the application of a piece of kid, spread with soap cerate, will mostly prevent it.

In fractures of the femur within the capsular ligament, the application of any splints in the treatment is discarded—the limbs being merely supported by pillows in the extended position. No case has been observed in the period comprised in this report, in which the toes were thrown inwards. Several instances of fractures about the hip joint, in persons of middle age, have come under notice, in which, even with the most accurate examination and measurement, it was impossible to detect any crepitus or shortening of the limb till after the lapse of one or more days.

Leg.—In the treatment of fractures of the leg, as in those of the thigh, splints or bandages are rarely applied to the limb. The leg is placed in a

fracture-box upon a well-stuffed pillow, previously covered by a thin oil cloth, in such a manner as to bring the sole of the foot in contact with the foot-board. The fractured bones are then accurately adjusted, and the sides of the box are tied together moderately tight. The foot is securely fastened to the foot-board by means of a strip of bandage, in order to prevent its falling to either side, and the pressure of the pillow is, in the vast majority of cases, quite sufficient to retain the fragments in their natural position. The foot-board of the box is set into its bottom nearly straight, and is made to project beyond the foot, in order to prevent the toes from falling downwards, and thus cause a projection forwards of the upper end of the lower fragment.

Severe inflammation so frequently follows these fractures, in consequence of most of them being accompanied with much contusion, that measures are invariably taken *ab initio* to lessen its severity. These consist in the application of cooling lotions to the limb and attention to position, elevating the fracture-box or foot of the bedstead. It is to prevent the pillow from becoming wet and unpleasant when the evaporating lotions are applied, that the oil cloth is placed above it. In order to obviate deformity in these fractures when they occur at the lower part of the leg, it is highly important to keep the foot well forwards, and this is best done by placing under the heel some layers of carded cotton.

At the end of five or six weeks, the union is generally sufficiently firm to allow of the removal of the limb from the box, and a bandage and pasteboard splints, made to fit accurately the leg by previously soaking them in warm water, are applied to its sides. On these becoming hard, the patient is permitted to move about.

In very oblique fractures of the leg, where the pressure made by the pillow is not sufficient to prevent the recurrence of deformity after its reduction, permanent extension is kept up by means of Desault's splints, as in fractures of the thigh.

In fractures of the lower end of the fibula, where the foot is much drawn outwards, the apparatus of Dupuytren, consisting of a conical pad to make pressure over the internal malleolus, and a single splint applied to the inside of the limb, from the upper extremity of the leg to some distance beyond the foot, is employed; but where, as is most generally the case, the tendency to a recurrence of the deformity is not in a great degree, the apparatus commonly made use of for other fractures of the leg, consisting of the fracture-box and pillow, so placed as to exert rather more pressure than usual upon the outer ankle, is resorted to. These fractures are sometimes accompanied by compound luxation of the lower end of the tibia. The following instance in which this occurred, where the lower extremity of the tibia was successfully removed by Dr. Harris, was witnessed by me.

Barney Short, ætat. 32, was admitted on the 21st of June, 1830, for a compound fracture at the ankle. Upon examination, the foot was found to

be thrown outwards, and the end of the tibia to protrude through the integuments, which embraced it tightly, at the same time that there was a fracture of the fibula three inches above the joint.

Pretty strong efforts were made to reduce the displaced bone, which caused the man so much pain, that Dr. H. desisted from his attempts, and determined to saw off the projecting end of the tibia.

About an inch and a half was accordingly removed, after which the bones were easily reduced and the limb placed in a fracture-box and cold applications made to it. Although severe inflammation followed the operation, yet the man did well, and was discharged on the 13th of October following, walking with the aid of a crutch but with the wound perfectly healed.

Two years after, Short visited the hospital; his leg was perfectly sound, though of course shortened. With a high-heeled shoe he walked very well and a great deal—his occupation being at the time that of a pedler.

Compound fractures of the leg are more frequent with us than compound fractures of any other part. When not so severe as to call for immediate amputation, the wound is carefully cleansed, and its sides accurately brought together with strips of adhesive plaster, and covered with lint, after which the limb is placed in a box, as in simple fractures, without bandages or short splints, and cooling applications made to it. If the wound unites by the first intention, which, however, is exceedingly rare, the treatment is continued; and in cases where this does not happen, if the suppuration which follows is moderate in quantity, the same treatment is pursued with the addition of a poultice laid over the part.

In these accidents, where the discharge of pus becomes profuse, or where hæmorrhage from the veins or small arteries, either primary or secondary, is troublesome, or is to be looked for, an excellent mode of treatment was introduced into the house many years since by Dr. J. R. Barton. It consists in fixing the limb in a good position in a fracture-box on a bed of dry bran, and surrounding and enveloping it with the same material. This application is soft and pleasant to the patient, makes moderate and very equable pressure, which is increased in proportion to the increase of the hæmorrhage by the bran becoming moistened and expanded, and is unirritating to the wound, at the same time that it may be removed with the aid of a spatula or syringe, and re-applied without causing pain or disturbing in any degree the limb. No mode of dressing that I have ever made use of can be compared to that with bran, in injuries of this kind attended with profuse suppuration, during our extreme hot weather. At this season, the fetor arising from the discharge is often so powerful as to taint a whole ward, and in such cases animalculæ are generated in the course of a few hours, if the wound be in the slightest degree exposed. Clean bran, by covering completely and closely every part of the injured surface, hinders the generation of these animals, and at the same time prevents, in a great measure,

the odour that would otherwise arise, by rapidly and effectually absorbing the discharge.

Patella.—In fractures of this bone, the treatment consists in the application of a roller from the toes upwards, passed around the knee in such a way as to bring the fragments into apposition, and applied with a very moderate degree of tightness. The limb is then extended upon a well padded splint, extending from a little above the heel to the upper part of the thigh, and the whole is afterwards placed upon an inclined plane composed usually of pillows.

Clavicle.—For a number of years past, the use of Desault's apparatus for fracture of the clavicle has been entirely abandoned. As generally put on, the apparatus does not fulfil the indications intended, and when applied tightly and properly, so as to keep the fragments in perfect apposition, it in most cases produces great difficulty of respiration, or severe pain in the arm or chest. Besides this, it soon becomes relaxed, is easily deranged, and covers entirely the seat of injury, thereby making it impossible to ascertain whether or not the reduction remains complete without the removal of a part of it. The apparatus used at the hospital consists in a pad for the axilla, a ring formed of some soft substance, as a roll of muslin or of buckskin, for the shoulder of the sound side, and a sling for the elbow made of linen, extending half way up the arm, and two-thirds of the way down the fore-arm. To the elbow piece is attached three strong tapes—one to its upper and posterior part, and one to each anterior extremity. The following is the mode of applying the apparatus; a proper pad being selected and fixed in the axilla, by means of tapes fastened to its upper ends, and passing over to the sound shoulder, the ring or collar is carried up and held on the shoulder of the sound side; the sling is then fitted to the elbow, and after the fracture is reduced by drawing the arm downwards, and pushing the elbow upwards across the chest, the tape on its posterior part is carried over the back and firmly tied to the collar on the opposite side. This done, the surgeon comes round in front of the patient, and makes fast to the collar the tapes attached to the anterior extremity of the elbow piece. These are to be drawn tight enough to throw the shoulder sufficiently outwards and upwards to remove all deformity. The hand is then supported in a sling, or by a strip of bandage fastened to the collar, The whole apparatus is to be re-examined and tightened daily. The chief indications in the treatment of fracture of the clavicle are perfectly fulfilled by the use of this apparatus; the pad in the axilla throws the shoulder outwards, at the same time that the drawing up of the elbow by the linen bag throws it upwards and backwards. Besides this it is simple, requires no bandaging, and leaves the part injured at all times open to inspection. The apparatus, too, can readily be applied in females, in whom it is all important to obviate deformity. The apparatus was contrived and introduced into the practice of the hospital in

1828, by Dr. Fox, then house surgeon, since which time it has been constantly employed.

Spine.—The treatment in these cases consists in keeping the patient in a state of perfect rest, at the same time that pressure is taken off the projecting parts as much as possible by the application of pillows and other appropriate means, the careful use of the catheter, and obviating any symptoms of inflammation that may set in by the usual treatment. No instance has occurred in the ten years past, in which the operation for raising depressed portions of the vertebræ has been practised.

Humerus.—In fractures situated at the middle of the bone, three or four pasteboard splints are commonly made use of—the outer extending from the top of the shoulder to the external condyle, the inner reaching from the axilla to just above the internal condyle, and the anterior one sufficiently long to reach to the bend of the arm. The roller is applied, as in all other cases, from the fingers up, and the fracture being reduced, and the splints fixed as mentioned, is returned and fastened over them. The arm may then be bound to the body by a broad bandage, or can be left free, supported by a sling. In patients who are very restless, the roller soon becomes loose about the fore-arm and elbow, and necessitates a frequent re-application of it. To prevent, in a measure, this almost daily renewal, the use of an angular board splint well padded, and extending from the axilla to the hand on the inside of the arm is sometimes substituted; one or more short splints being at the same time applied above the elbow. The fragments by this means are held perfectly in place, and the angular splint, by holding the fore-arm at rest, keeps the bandage well and evenly applied for a much longer period than is otherwise possible. During the cure, the angle of the splint should be occasionally changed, in order to prevent any degree of stiffness at the elbow. This mode of dressing is applicable to fractures below the insertion of the deltoid only; for fractures situated high up in the bone it would be manifestly improper.

Elbow.—One of the most common of these, after fractures of the inner condyle, is that in which two fractures and three fragments are present, the humerus being broken transversely just above the condyles, and these last separated longitudinally. All fractures about this part are very troublesome and serious accidents, and to treat them well, requires extraordinary care and attention, whatever method of treatment may be made choice of. Two rectangular splints applied to the inner and outer sides of the arm, and extending from its upper part to the ends of the fingers, are frequently employed with us. When these are used, the angles of the splints should be frequently changed to prevent deformity and stiffness of the joint—those first applied being removed after ten or twelve days, and replaced by others of an obtuse angle. Another method of treatment, which is sometimes pursued at our hospital in fractures about this joint with very satisfactory results, consists in the application of a single board splint applied to the

front of the arm. This should be of the width and shape of the limb, well padded, and extending from the upper part of the arm to the ends of the fingers. At first a right angled splint may be used, but at every dressing, (and after the first few days they should be frequent,) it is to be changed for a more obtuse angled one, until finally the arm can be brought perfectly straight. The obtuse angled splints are then recommenced with, and gradually replaced by others less obtuse, until the limb is again brought to a right angle. This plan carefully pursued, will generally prevent deformity, at the same time that it is of more easy application, and more effectually hinders the occurrence of anchylosis than the common mode of dressing.

Fore-arm.—These accidents are treated by means of a roller and two splints, applied in the usual manner. Fractures of the lower end of the radius, which, it may be remarked, are very frequently mistaken for simple sprains, are treated also with two splints; the inside one extending from the upper part of the arm beyond the ends of the fingers, while that on the outside passes below the knuckles. In these, as in all other cases in which a simple fracture communicates with, or is in the immediate neighbourhood of the wrist or elbow joints, the dressings should be removed at the end of ten or twelve days, and after the joint is gently exercised, are to be re-applied. This should be repeated, at farthest, every second day. The same rule should be observed in all cases in which the fore-arm is confined in two long splints, as otherwise great rigidity of the wrist-joint occurs, which is annoying to the patient, and requires a very long time for its disappearance.

Ribs.—Fractures of the ribs are treated by the application of a broad roller to the chest, confining the patient to bed, and the usual general treatment, such as abstraction of blood, &c., when dyspnœa, pain, or other untoward symptoms arise. A large pitch plaster is sometimes used with advantage.

Cranium.—In cases of simple fractures of the cranium with depression of bone, but unaccompanied with symptoms of compressed brain, the trephine has not been resorted to, while, in instances of compound fracture, attended with depressed fragments, even where no symptoms of compression existed, it has been the general practice to remove the portions driven in.

In the following tables, no separate head is retained for compound fractures of the leg or arm, the entries being so made in the books of the institution that it is impossible in all cases accurately to ascertain whether the patient was admitted for simple or compound fracture, and for the same reason under the heads of fracture of the arm, and fracture of the leg, are included respectively, those of the fore-arm, either of one or both bones, as well as of the humerus, and of one or both bones of the leg. It is to be regretted that no record of the period required for the union of the different fractures treated, has been kept. In all cases except a very few where our patients request a discharge, it is the custom of the house to retain them for a considerable time after union—until the stiffness and debility resulting from

their injuries and confinement, has been so far removed as to enable the patients shortly afterwards to resume their employments.

	Number.	Cured.	Relieved or by request.	Died.
1830.				
Fractured thigh	12	10		2
Fractured leg	21	20		1
Fractured patella	3	3		
Fractured cranium	3	2		1
Fractured spine	1		1	
Fractured ribs	4	4		
Fractured clavicle	10	7	3	
Fractured arm	27	25	1	1
Fractured fingers	1	1		
Total,	82	72	5	5
1831.				
Fractured thigh	18	17	1	
Fractured leg	25	22		3
Fractured patella	2	1	1	
Fractured cranium	2	1		1
Fractured spine	2			2
Fractured ribs	4	3	1	
Fractured jaw	2	2		
Fractured clavicle	9	9		
Fractured arm	27	25	1	1
Fractured fingers	1		1	
Fractured sternum	2	2		
Fractured scapula	1	1		
Fractured toes	1	1		
Compound fractured thigh	1			1
Un-united fracture	1		1	
Total,	98	84	6	8
1832.				
Fractured thigh	8	7		1
Fractured leg	24	18	1	5
Fractured patella	1	1		
Fractured cranium	5	2	1	2
Fractured ribs	3	3		
Fractured clavicle	9	9		
Fractured arm	19	16	2	1
Fractured sternum	1	1		
Fractured pelvis (comp.)	1			1
Total,	71	57	4	10
1833.				
Fractured thigh	14	12		2
Fractured leg	31	26	1	4
Fractured patella	1	1		
Fractured cranium	8	2		6
Fractured ribs	4	2		2
Fractured jaw	2	1		1
Fractured clavicle	8	8		

	Number.	Cured.	Relieved or by request.	Died.
1833.				
Fractured arm	20	18	1	1
Fractured sternum	1			1
Fractured scapula	1	1		
Fractured nose	1	1		
Compound fractured thigh	1			1
Un-united fractures	2	1	1	
Total,	94	73	3	18
1834.				
Fractured thigh	10	8	1	1
Fractured leg	36	31	1	4
Fractured patella	3	3		
Fractured cranium	9	4	1	4
Fractured ribs	5	4		1
Fractured jaw	2	2		
Fractured clavicle	10	8	1	1
Fractured arm	20	17	2	1
Fractured finger	1	1		
Fractured scapula	1			1
Fractured toes	1	1		
Fracture	1	1		
Compound fractured thigh	1			1
Un-united fracture	3	3		
Total,	103	83	6	14
1835.				
Fractured thigh	16	12	1	3
Fractured leg	32	26		6
Fractured patella	4	4		
Fractured cranium	2	1		1
Fractured ribs	11	10		1
Fractured jaw	8	4	1	3
Fractured clavicle	9	9		
Fractured arm	27	22	3	2
Fractured finger	1	1		
Fractured scapula	1	1		
Fractured toes	1		1	
Fractured spine	1			1
Fractured pelvis	1	1		
Compound fractured thigh	2			2
Un-united fractures	2			2
Fracture	1	1		
Total,	119	92	6	21
1836.				
Fractured thigh	9	8	1	
Fractured leg	27	20	2	5
Fractured cranium	1			1
Fractured ribs	3	3		

	Number.	Cured.	Relieved or by request.	Died.
1836.				
Fractured jaw	3	2		1
Fractured clavicle	8	5	3	
Fractured arm	36	32	2	2
Fractured scapula	1	1		
Fractured spine	1		1	
Fractured toes	2	2		
Fractured finger	2	2		
Compound fractured thigh	2			2
Compound fractured knee	1			1
Un-united fracture	1	1		
Total,	97	76	9	12
1837.				
Fractured thigh	6	3	3	
Fractured leg	35	28	2	5
Fractured cranium	5	1		4
Fractured ribs	2	2		
Fractured jaw	1	1		
Fractured clavicle	7	7		
Fractured arm	28	23	4	1
Fractured finger	1	1		
Fractured spine	1			1
Fractured scapula	1	1		
Fractured nose	2	2		
Fractured pelvis	2	2		
Compound fractured thigh	3	2		1
Un-united fracture	1	1		
Total,	95	74	9	12
1838.				
Fractured thigh	13	9	1	3
Fractured leg	34	26	3	5

	Number.	Cured.	Relieved or by request.	Died.
1838.				
Fractured cranium	7	1		6
Fractured spine	1			1
Fractured ribs	6	5	1	
Fractured jaw	1			1
Fractured clavicle	6	6		
Fractured arm	24	20	3	1
Fractured finger	2	2		
Fractured scapula	4	3	1	
Fractured toes	2	2		
Fractured os calcis	1			1
Fractured knee (comp.)	1	1		
Un-united fracture	1	1		
Total,	103	76	9	18
1839.				
Fractured thigh	12	6	1	5
Fractured leg	28	24	1	3
Fractured cranium	4			4
Fractured ribs	4	3		1
Fractured spine	1			1
Fractured sternum	1	1		
Fractured clavicle	8	7		1
Fractured arm	22	18	3	1
Fractured patella	2	1	1	
Fractured toes	1		1	
Fractured ilium	2	2		
Fractured elbow	2	1		1
Fractured foot	3	3		
Compound fractured thigh	5	2	1	2
Un-united fractures	2	2		
Total,	97	70	8	19

General Summary of the Fractures treated during 10 *years.*

Years.	Whole number.	Cured.	Relieved or by request.	Died.	No. amputated.
1830	82	72	4	5	1
1831	99	85	6	8	2
1832	71	57	4	10	3
1833	94	73	3	18	5
1834	103	83	6	14	1
1835	119	92	6	21	2
1836	96	76	9	12	4
1837	95	74	9	12	1
1838	103	76	9	18	4
1839	97	70	8	19	8
Total,	959	758	64	137	31

The relative frequency of fractures will be seen in the following table.

	Number.	Cured.	Relieved or by request.	Died.	Amputations.
Fractured thigh	118	92	9	17	2
Fractured leg	293	241	11	41	14
Fractured cranium	46	14	2	30	
Fractured patella	16	14	2		
Fractured spine	8		1	7	
Fractured sternum	5	4		1	
Fractured clavicle	84	75	7	2	
Fractured arm	250	216	23	12	9
Fractured fingers	9	8	1		
Fractured scapula	10	8	1	1	
Fractured elbow	2	1		1	
Fractured nose	3	3			
Fractured jaw	19	12	1	6	
Fractured pelvis	5	5			
Fractured foot	12	10	2		4
Fractured ribs	46	39	2	5	
Fracture	2	2			
Compound fractured pelvis	1			1	
Compound fractured knee	2	1		1	2
Compound fractured thigh	15	4	1	10	
	946	749	62	135	31
Un-united fractures	13	9	2	2	
Total,	959	758	64	137	31

Of the thirty-one amputations performed in cases of fracture, twenty-two were cured and nine died. The details of these have already been given in our statistical account of the amputations made at the hospital, during the years comprised in this report, in the numbers of this Journal for August, 1838, and May, 1840.

No instance of artificial joint followed the treatment for fracture during the ten years included in the report. All the cases observed there during that period having been sent to the institution from distant parts. Of the thirteen cases that were received, nine were cured, two died, one was benefitted, and one left the house a day or two after entrance without undergoing any treatment for it. Of the fractures included in the above tables, many were compound, and many complicated by other serious injuries.

Compound Fracture of the Thigh.—Fifteen of these accidents entered the house between the years 1830 and 1840. Of these four were in children below thirteen years of age. In one of these (ætat. 6) the wound healed kindly, and no bad symptoms followed; in another case (ætat. 7) the patient was carried home by his parents, and recovered; in a third (ætat. 11) the patient died; and the last (ætat. 12) recovered with a good limb. Of the eleven cases above thirteen years of age, seven died within two weeks after the receipt of their injuries, an eighth (ætat. 18) lived three months, and died of metastatic abscess; a ninth (ætat. 56) died at the end of eleven months of chronic diarrhœa, bony union at the time being perfectly firm, though the wound had not closed; and the other two cases (ætat. 21 and

15) recovered with good limbs, though in the first case not till after a residence in the hospital of twenty-three months, and the removal of a necrosed portion of bone six inches in length.*

Dislocations.—With the exception of a few of the luxations of the shoulder and hip, the cases included in the following table were of recent occurrence, and in all of these cases the bones were reduced without accident of any sort. Two out of the three luxated shoulders marked as discharged by request, were incurable. One of them existed in the person of a young sailor, aged 20, who was admitted Dec. 4th, 1830, with a forward dislocation of the head of the humerus of sixty-two days standing. Some days after his entrance, an attempt was made by Dr. Hewson to reduce it by means of the pullies. Great force was used, and the efforts were kept up for a long time, but without success. After the lapse of a short time, by request of the patient, strong efforts were again made to reduce it, and kept up for a considerable time, but with no better effect than on the first attempt.

The other case was a forward luxation of three months' standing, which it was found impossible to reduce by any proper degree of force, and has already been given at length in a former report.†

Among the cases of dislocation at the shoulder cured, are those which had been out twenty-six, forty-five, fifty-three, thirty-one, ten, twenty-one, and thirty-one days, respectively.

The only instance of luxated hip of long standing, in which attempts at reduction were deemed proper, was that of a lad, ætat. 12. The signs of dislocation, upwards and backwards on the ileum, of the right femur, were well marked, with shortening of the limb to the extent of two inches. The accident had happened fourteen weeks previously, and its nature had been mistaken by the person called to visit him. The injury had been produced by a fall from a height, and the head of the bone was to a certain extent moveable by rotating the limb. After the application of the pullies he was bled largely from the arm, and took a solution of tartar emetic, by which means his system became completely relaxed. Pretty strong extension was then made from above the knee, and after this had been kept up near half an hour, the head of the bone was drawn outwards by means of a towel, and the knee rotated. During these efforts a sudden crack was distinctly heard. The apparatus was immediately removed. The boy was now exceedingly prostrate. Much more motion than before the trials existed at the hip; the toes could be turned much further outwards, and the knees could be to a certain extent separated. The boy did not complain of pain on rotation, and took a few steps upon the limb some time after being released. It was at first feared that a fracture at the neck of the bone had been pro-

* This patient, I have been informed, entered the Baltimore Infirmary a few months after his discharge from our institution, where he died in consequence of some disease of the injured limb.

† American Journal for February, 1840.

duced, but repeated close subsequent examinations proved this not to be the case. He left the institution twenty-two days after the trial, with more motion in the limb than he had previously had.

Table of the Dislocations treated during 10 *years.*

	Number.	Cured.	Relieved or by request.	Died.
1830				
Dislocated shoulder	3	2	1	
1831				
Dislocated shoulder	3	2		1
Dislocated hip	4	4		
Dislocated astragalus	1			1
Dislocated cervical vertebræ	1			1
Dislocation and fracture	1	1		
1832				
Dislocated shoulder	3	3		
Dislocated hip	2	2		
Dislocated jaw	1	1		
Compound dislocated thumb	1		1	
1833				
Dislocated shoulder	4	4		
Dislocated hip	1		1	
Dislocated wrist	1	1		
1834				
Dislocated shoulder	6	6		
Dislocated hip	1	1		
Dislocated ankle	1			1
Dislocated wrist	2	2		
Dislocation	1		1	
1835				
Dislocated shoulder	7	7		
Dislocated hip	2	2		
Dislocated ankle	1	1		
Dislocated elbow	3	3		
1836				
Dislocated shoulder	6	5	1	
Dislocated hip	3	1	1	1
Dislocated elbow	2	2		
Dislocated clavicle	1	1		
Dislocation and laceration	1			1
1837				
Dislocated shoulder	6	6		
Dislocated hip	1		1	
Dislocated clavicle	1	1		
Compound dislocated thumb	1	1		
1838				
Dislocated shoulder	7	7		
Dislocated hip	2	2		
Dislocated radius	1	1		
1839				
Dislocated shoulder	4	3	1	
Dislocated hip	1	1		
Dislocated jaw	1	1		
Dislocated clavicle	1	1		
Dislocated elbow	2	2		
Dislocated wrist	1	1		
Dislocated finger	1	1		
Dislocated great toe	1	1		
Total,	94	80	8	6

General Summary of the Dislocations treated during 10 *years.*

	Number.	Cured.	Relieved or by request.	Died.
Dislocated shoulder	49	45	3	1
Dislocated hip	17	13	3	1
Dislocated astragalus	1			1
Dislocated cervical vertebræ	1			1
Dislocated jaw	2	2		
Dislocated ankle	2	1		1
Dislocated elbow	7	7		
Dislocated wrist	4	4		
Dislocated clavicle	3	3		
Dislocated radius	1	1		
Dislocated finger	1	1		
Dislocated great toe	1	1		
Compound dislocated thumb	2	1	1	
Dislocation and laceration	1			1
Dislocation and fracture	1	1		
Dislocation	1		1	
Total,	94	80	8	6

Some of the dislocations included in the above table were accompanied by other severe injuries, and in all the instances in which death followed, it was from some other cause than the luxation, except those of the astragalus and vertebræ. Simple dislocation of these bones are very rare forms of accident; a detailed account of the first of them I have already published in vol. XX of this Journal. The luxation of the spine occurred at the fifth cervical vertebræ, and was unattended by any fracture. The following are its details:—Thomas Lee, ætat. 30, was admitted early on the morning of September 9th, 1831. At 11 o'clock on the previous night, while in a state of intoxication, he had been thrown headlong against the curbstone from a gig that he was driving at a furious rate. There was complete paralysis of the lower extremities, chest, and lower half of the trunk. He complained of great pain over the lower cervical vertebræ; but so much swelling and ecchymosis existed at this part, that the state of the spinal column could not be satisfactorily ascertained. When placed in an erect position he cried out from pain, unless his forehead was firmly supported; and, when laid on his back, his head was seen to be thrown a little forwards, and pushed down upon his chest. The hands and arms retained their sensibility, but he was unable to double his fist, or seize any thing firmly. His respiration was hurried, difficult, and performed entirely by the diaphragm; he complained incessantly of being unable "to breathe properly." Priapism existed, and continued constant till the period of his death. From the existence of the above symptoms, the case was looked upon as one of fracture, with consequent luxation of the lower cervical vertebræ. He was placed on his back, with the head and shoulders slightly elevated, had his bladder, which was distended, emptied by the catheter; and, as his pulse was full, he was bled moderately. By 10 A. M. his sufferings had become so great, that Dr. Barton, the surgeon in attendance, deemed it proper to make some attempt to relieve them, by cautiously making extension and counter-extension. The extension was made by means of a handkerchief passed under the chin, the ends of which were tied firmly to the head of the bedstead, and the counter-extension was kept up by securing the ankles with a broad bandage, and fastening it to the foot-board. The patient expressed himself as being decidedly easier after the extension was made. On visiting him on the morning of the 11th, I found him without pain, and with no apparent change in his symptoms. His position was in no way changed; and, while in the room engaged with another patient a few feet distant, my attention was directed by the nurse to Lee, and on approaching him I found him dead.

Autopsy.—A considerable effusion of blood was found in the cellular tissue beneath the skin, as well as between the muscles on the back part of the neck. The yellow ligaments and the ligamentous fibres, holding together the oblique processes, were ruptured, and the fifth cervical vertebra was thrown forwards upon the sixth. Examined in front, the vertebral ligaments were found also to be ruptured, and the inter-vertebral substance

torn up, so that the body of the fifth was completely separated from, and projected over, the sixth. Accurate examination, after the removal of the upper part of the spinal column, proved that no fracture existed, and that the injury consisted in a simple displacement of both body and processes of the vertebræ. The examination was made twenty-eight hours after death, but, owing to the heat of the weather, putrefaction had considerably advanced, and the spinal cord, the coverings of which were uninjured, was so much softened in its whole extent, that its state at the point of injury could not be determined.

ARTICLE III. *Report on the Medical Topography of Madison Barracks, Sacket's Harbour, N. Y., and the Diseases which occurred there between the 1st of August*, 1838, *and the 30th of September*, 1840. By THOS. HENDERSON, M. D., U. S. A.

THE post at Sacket's Harbour was occupied by portions of the 8th regiment United States infantry, sometime in May, 1838. The numerical force at Madison Barracks fluctuated in the winters of 1838–9, and 1839–40, as detachments were sent to outposts. I was with three detachments at Oswego, Ogdensburg, and Morristown, and from what occurred there the representations in the tables are accurately estimated from an average force of 450 men. In May and June, 1840, the command was reduced to two skeleton companies, that were rapidly filled up to one hundred and fifty men; while the slender force in June accounts for no reports of sick during that month.

The station at Sacket's Harbor is in latitude N. 43° 50′, and in longitude E. 1° from Washington. It is distant from the ocean about 320 miles—from Lake Ontario 8 miles, and is situated on the southern side of the bay formed by the entrance of Black River into the lake. The colour of the water of this river, which is the third in size in the state of New York, is dark, from whence the stream takes its name; and the water is not drunk by those who live on the river, under an impression that it is not wholesome—it is certainly unpleasant to the taste, being greatly inferior to the water taken from the lake. The surface of the lake is 230 feet higher than that of the ocean, and the plain of the parade ground is 40 feet elevated above the surface of Lake Ontario.

The grounds around the garrison are level; the soil is dark with much clay, and rests on a stratum of limestone, which is in depth from the surface from one to three or four feet. In wet seasons the grounds around the post are wet and boggy, and even after ordinary rains the nature of the soil

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and the superficial calcareous stratum tend to keep the earth moist, favouring terraqueous exhalation. Within the pickets the draining is good, and the gutters, &c. well policed. There are no marshes near enough to the garrison to affect its health. The physical aspect of the surrounding country is undulating; the soil generally rich, and the population healthy. The site of the post is remarkably exposed to the bleakest blasts from the lake in winter and spring; though no residence can be more delightful than Madison Barracks during the summer and autumn.

The annals of Sacket's Harbour show that formidable diseases have prevailed in winter, summer, and autumn. During the war of 1812, the epidemic called pneumonia typhoides originated on the lines, and was severely felt at this place. In the summer (July) of 1813, "from one-tenth to a fifth of the crew of Com. Chauncey's squadron were on the sick report at the harbour." In August more than one-sixth of the seamen were left on shore; and Cooper's Naval History tells us that at one time in this season, (1813), the ship Madison had nearly half of her complement on sick list. From the same source we learn that in the winter of 1814, the sickness of the "Harbour" was of the gravest character. One half of the crew of the Madison was sick, and one-fifth died. In the summer of 1814, the operations of the squadron were delayed by the illness of the mechanics at the Navy-yard.

Since the peace of 1815, I learn from intelligent officers of the army stationed here, and from respectable citizens, that the place has been healthy. Winter and summer diseases have been mild and tractable, and autumnal fevers neither common nor fatal. The second regiment of infantry was at this post for two or three years, about 1824 to 1826, and was free from disease. Troops were subsequently stationed here and enjoyed health, while the neighbouring country had similar exemption from disease.

In the fall of 1838, the 8th regiment of infantry was in force at Madison Barracks. Small detachments had been at the post during the whole year, and general health prevailed. In August, September, and October but eight cases of fever (continued) occurred. During the winter of 1838–9, and in May 1839 some fever appeared, and some cases terminated fatally from cerebral disease. I was at several stations on the frontier during that winter, and saw but one case of the fever, and that was brought convalescent from the Harbour to Oswego. In May and June diarrhœa became very rife at Madison Barracks with some fatal cases of continued fever. In July and the subsequent months the diarrhœa was almost universal. Cases of fever became more numerous in July and August—several were fatal. The morning sick report, confined exclusively to officers and soldiers, was sometimes as high as eighty; and many other in families not borne on the sick report. On the 23d of August I reported for duty, and found disease prevailing to great extent in two forms, viz: diarrhœa and fever, and the two combined.

Let it be here observed that the summer of 1838 was exceedingly hot and

dry; the summer of 1839 cool and seasonable as to rain. Except at Charleston, S. C. and in Michigan, the most general health existed in 1838, while in 1839, with a season throughout favourable to health, so far as moderate heat and moisture from rain are concerned, epidemic dysentery prevailed in New England, the most malignant endemics desolated New Orleans, Mobile, Pensacola, St. Augustine; fearful disease raged in Georgia and Illinois, as well as in many towns on the Mississippi—and, what is to the matter in hand, Sacket's Harbour and its vicinity were unusually sickly—as was the regiment quartered at Madison Barracks. In the neighbouring country places, usually healthy, suffered from sickness and mortality. Yet the sickness was circumscribed so far as the military stations were concerned, for the troops at Rochester and Buffalo were healthy; at Plattsburg remarkably so. Nearer to Madison Barracks, at Ogdensburg, on the St. Lawrence, on one side, and at Oswego on the lake, on the other side, there was perfect health; while on each side, between Ogdensburg and Oswego, several places were very sickly. Now, *sine causa evidente*, the 8th regiment, in all its departments, officers, soldiers, and families, besides citizens employed on the works, were almost universally affected with diarrhœa; and as autumn approached, continued fever became very general; in August, September, and October, one hundred and ten cases of continued fever appeared among the soldiers and officers alone.

At a military station, where, in the autumn of 1838, men were concentrated under disadvantageous circumstances, general health prevailed during a season of unexampled heat and drought; while in the summer and autumn of 1839, the succeeding year, during an equable and pleasant season, at the same military station, hundreds of cases of diarrhœa, intermittent and continued fever arose, when the disadvantages of 1838 were removed;—we say it is very natural to look for a cause for such difference. So far as the immediate *locale* is concerned, every thing was favourable to disease in 1838, and the very reverse in 1839. In 1838, the barracks were repairing, and being cleaned, the sleeping rooms wretchedly ventilated, the post generally unpoliced, and the men not accustomed to the water—while, in 1839, the works were completed, the company quarters much improved in ventilation though still bad in that respect, the men accustomed to the water, and the police of the post admirable. Within the pickets no obvious cause existed.

The level land in the vicinity was more moist in 1839 than in the preceding year, but not more so than in many seasons in the course of the last twenty years, when no sickness prevailed in the garrison or in the village. This was not a reasonable cause for the difference.

It is known that during the past four or five years, the lakes have risen about five feet, and they are now falling. I see nothing in the laying bare annually of a few inches of lake shore that could cause sickness; for in this vicinity no grounds have been covered or laid bare by the rise or fall of water so as to afford malaria. The reports from the British stations on the

opposite shores of the lakes, show conclusively that no influence on health has grown out of this phenomenon in these vast interior seas. The fall of the water in the lakes cannot be shown to be a cause of disease.

Again—the opinion is that the water is bad, and has caused disease. *A fortiori*, it should have done so more conspicuously in 1838 than in 1839. Of those who have died of fever, the majority were of persons accustomed to the water of this lake region; and no disproportion of sick, so far as foreigners are concerned, favours the idea of water causing the sickness. Nor have troops stationed here during past years been affected by water in this way; the water is always the same, while fever has rarely appeared since 1816.

It has been said that the imperfect ventilation of the barracks produced the sickness. If so, why not more conspicuously in 1838 than in 1839; and why did the same fever prevail in the neighbouring country? Nor is there any reason to believe that any defect in the quality of the rations produced the fever.

A few practical observations are suggested by some of the diseases in the table.

Catarrh is very conspicuous for the number of cases. Though frequent, it was in no instance fatal. Soldiers are very few of them sufficiently advanced in life to make catarrh formidable. The inflammation of the tracheal and bronchial mucous follicles was readily subdued. Pain over the region of the frontal sinuses was the most unpleasant symptom, next to the cough. Slight fever with frequent pulse; inflamed watery eyes, cough, with soreness of the pulmonary mucous lining, made it necessary in many cases to confine the patients; and bleeding, mucilaginous drinks, expectorant mixtures, with minute anodyne doses, were in all cases sufficient.

Diarrhœa.—Of the seven hundred cases of diarrhœa, three of the chronic form proved fatal. In no part of the United States, have I, during any one season, seen this disease more frequent or less fatal. The habits of soldiers, their exposures, their negligently cooked food, make dysentery and diarrhœa almost technically army diseases; and when the reckless feeling of the men as to personal security, and their neglect of diarrhœa in most instances are considered, it is remarkable that so few cases became fatal or chronic. The complication of this disease with fever will be subsequently noticed. It will be seen that dysentery was unknown at this post, and at the outposts. The irritation of the intestinal canal was confined to the small intestines, the colon and rectum escaping entirely that morbid condition constituting colitis or dysentery. How different this from what takes place in hotter latitudes. The principal cause of the looseness was a copious flow of yellow bile, induced in a great number of instances primarily by the water, and perpetuated by the exposures and indiscretions of soldiers. This lientery of the liver kept up frequent loose stools without tenesmus. There was pain in the bowels, but in the region of the small intestines. The pulse was frequent

and soft; skin of natural temperature, and very often profusely perspiring. Tongue slightly white and moist.

For this form of disease, unaccompanied with headache, vertigo, nausea, or pain in the limbs, very simple treatment sufficed. Castor oil, rhubarb, and magnesia, with or without Dover's powder, and this anodyne in full dose at night controlled the cases; and abruptly too, if imprudence in diet and drinking the bay water, or indeed the limestone water, were not operating to keep up the irritation on the mucous tissue, and through it on the liver.

But in numerous instances the diarrhœa was attended by another group of symptoms that were important to the patient's safety. The skin, instead of being moist and cool, was warm and dry; headache, vertigo, nausea, pain in the back and limbs, tongue yellow, fur in centre, red tip and edges, with debility, marked a form of diarrhœa which, if not arrested by suitable care and treatment, the looseness ceased to be conspicuous, while febrile phenomena became continued, well marked, always formidable; often fatal.

The first and essential step here was to take the men from quarters into hospital. Hospital surveillance and advantages, comprising rest, suitable diet, and remaining in bed, were indispensable. Ten grains of calomel, with castor oil, brought away dark or greenish stools, sometimes mixed with blood, diminished the frequency of the evacuations, and relieved the back and head. The prudent administration of ipecacuan and calomel, for antimonials were inadmissible, with cupping to the neck, soon brought the vascular and nervous systems into a state inviting the use of Dover's powder, with or without blue mass, at night. These cases terminated favourably. It added to the unpleasantness of the case that it was so often attended with catarrh; but unless the complication was merged in distinct fever, mild anti-catarrhal prescriptions sufficed. The table shows how diarrhœa was protracted into the winter months—and the whole view displays the agency of causes on the gastro-pulmonary mucous tissue in producing the conspicuous diseases of the post.

Febrile Diseases.—The attention of the reader is now directed to this important class of diseases. The table shows that 410 cases of the intermittent, continued and inflammatory fevers, have been treated. That the mortality from continued fever was 15, being nearly one-half of the whole number of deaths. For this far north region the whole list of malarial disease is at first view large; but from the earliest settlement of the country on the lakes, a fever has occasionally appeared called popularly the "lake fever;" and intermittents on the shores of Ontario and Erie lakes have been very common. Some localities have been more severely affected with fever than others, and Sacket's Harbour perhaps as often as any other. During the war of 1813, when the troops were so mortally sick with diarrhœa and fever, it was ascribed to the causes alluded to above in the topographical sketch; and especially to bad provisions, and great exposure to cold and to night air

from the want of quarters. These causes, except the water, have not existed here during the period embraced in this report.

Recent reports on the medical statistics of the British army throw some light on the diseases of this northern region; and some of the results of the reports have a bearing here, and will be summarily given.

1. In Nova Scotia and New Brunswick the causes to which intermittents are ascribed, such as marshy ground, vegetable matter decayed, &c., exist abundantly, while this form of fever is unknown there.

2. Low and alluvial as Fredericktown, and other stations in New Brunswick are, and extensive as are the reputed sources of malaria, febrile diseases are but little known—amounting to a "marked exemption from all diseases of a febrile nature."

3. Whereas in Upper Canada, and in the same temperature, there is a great amount of malarial disease.

4. In Upper Canada *inland* settlers, though living in reputedly malarial situations, marshy, foggy, &c., are free from disease, while those on the lake shores are sickly.

5. Common continued fever prevails in Lower Canada more generally than in the upper province, and intermittents are comparatively little known. Intermittents abound in Upper Canada; and it is well known that on the American side intermittents are, *cæteris paribus*, much more common on the shores of Lake Erie than on those of Ontario.

6. These reports show that the rise and fall of Lake Ontario have no influence on the sickness of the adjoining countries.

I shall make a few practical observations on the fevers of the table.

Under the head of fevers, 410 cases are noted. Of *intermittents* little need be said, as no case was fatal. They are strikingly different from intermittents at the south, in that they are not attended with any sign of local congestion during the paroxysm; nor have I seen in a single case any one of the sequelæ that render intermittents so formidable and obstinate in southern climates—no hepatic enlargement, nor spleen congestions, nor dropsical infiltration—nor yet the sallow jaundiced hue that marks those who live in localities habitually miasmatic. No case of quartan fever occurred to me. Intermittents were readily subdued with sulph. quin. I believe the majority of cases were brought from recruiting stations, especially at Cleveland. Observe how numerous intermittents were in May and June of 1839, and how diarrhœa commenced and prevailed during the same months.

The formidable disease in the regiment was the continued fever. The greatest mortality of the number sick of fever in any one month, occurred in May, 1839. At that time I was not stationed here, and have no means of ascertaining what peculiarities belonged to those vernal cases. The first case I met with was at Oswego, in December, 1838. The man had been brought sick from Sacket's Harbour; had a long attack of fever, the conspicuous features of which were shattered nervous energy, delirium, subsultus tendinum,

dry dark tongue, weak frequent pulse—the typhus gravior. Stimulants, tonics, and blisters were successfully used. No other case occurred at that post. On the 23d August, 1839, I reported for duty at Madison Barracks, and was in charge of the hospital until 15th October. Continued fever prevailed to great extent among the soldiers, officers and families. Diarrhœa was universal—but intermittents were scarcely seen.

I shall not enter into any minute detail of symptoms, but confine myself to those aspects of the fever in which it differed from malarial fevers of the middle states.

In the first place, there was more or less diarrhœa with almost every case. I scarcely recollect an instance in which diarrhœa had not preceded, for some longer or shorter period, the lapse into fever. Again—the fever was attended in many instances with a moist skin, even during the exacerbations; and these two things, the diarrhœa and the moist skin, constituted the chief peculiarities of the fever. They prevented the full, strong or hard pulse; on the contrary, produced a soft, somewhat voluminous, always frequent, sometimes weak pulse. Giddiness, vertigo, were constant concomitants of the headache; and they merit notice as probably connected with the cerebral determination that was so fatal in many of the cases. The brain was disordered in various ways; in one case furious delirium—but most frequently delirium commencing at night, increasing and disappearing as the exacerbation rose and declined towards morning—finally, stupor and coma. What of pain existed elsewhere was masked by the cerebral irritation. In two cases there was slow, weak pulse. The eye indicated the approach of cerebral collapse, becoming dull and suffused—the tongue dark and dry—stools watery, greenish or brown—subsultus tendinum, coma and stupor closed the scene. After cerebral irritation was distinctly formed, the course was that usual to such a form of fever everywhere; varying in no respect from what I have seen in the southern and middle states.

And but for the irritable mucous membrane, and the open moist skin, the treatment would not be peculiar. The looseness of the bowels and the perspiring skin prevented that state of the arterial system which calls for general blood-letting. It was very seldom admissible. Cupping on the abdomen or on the temples or neck, according to the seat of pain, was done—but not with very apparent or positive benefit.

Again—the very loose condition of the bowels made it necessary to select cautiously the cathartics. Saline laxatives, senna and all drastics were utterly forbidden; while the secretory apparatus demanded certain alterative aperients. Calomel was the appropriate cathartic, combining, as it does, powers controlling the secretions, aperient to the intestinal canal, while it allayed the irritability of the bowels; I saw no reason to give it in large doses. Ten grains was the cathartic dose, and, where there was diarrhœa, as much carb. calc. was added. I have practised in autumnal and malarial fevers in the various climates of the United States—on the northern frontier,

in severe fever opposite West Point, in various parts of Virginia, in Florida, and for thirty years. I have seen all the forms of fever in all classes of persons, natives, foreigners and coloured persons; and my experience is as decidedly in favour of the use of small doses of calomel, as my speculative views are in opposition to large doses. My usual prescription is ten grains of calomel with five of pulv. antim., or, in this fever, with ten grains of carb. calc. In severe cases of fever, the above doses are repeated in six hours, when, with the aid of ol. ricin., saline laxatives, or an enema, the legitimate objects are attained, viz. impression on secretory function and intestinal evacuation. To control the secretory apparatus, small doses are required from time to time throughout the disease. I have sometimes given *large* does of calomel, but candour requires me to say, that empirical rather than rational impulses governed me, and the result may be readily anticipated.

Again—absorbents and alkalies had the finest influence in allaying an irritable, and so far a morbid, state of the mucous tissue; diminishing the frequency of the stools, and thus saving the constitutional resources of the patient from great debility. I combined carb. calc. with calomel—gave it in free quantities with antimonials, which last could not be borne without it. The spir. æth. nitros., which judiciously used has such admirable effect in protracted fever, was given with carb. calc. and bi-carb. potass. This absorbent and alkaline treatment had positive and powerful agency in bringing the mucous membrane into a state to ensure the effect of calomel and antimony; and, as the bowels became less irritable, the skin lost that moist, unhealthy state above alluded to.

Blisters were important auxiliaries, applied as occasion required to the abdomen, to the back of the neck, or to the extremities. Where the signs of cerebral irritation were appearing, shaving the hair entirely from the head, and covering the whole scalp with a blister, warded off in some instances that dangerous local determination.

Many cases of fever, and some severe ones, occurred among the officers and their families, and among the laundresses. None of these terminated fatally, showing that the fever was not inherently severe; and leads to the legitimate inference, that soldiers are, from causes obviously not necessary to enumerate here, liable to more formidable attacks of disease, and, consequently, oftener fall victims to such attacks.

In some instances diarrhœa was suspended on the access of fever—here the abrupt suppression favoured an earlier and more formidable brain disease. Here and there fever was unpreceded and unaccompanied with diarrhœa. The less complication of course the less danger.

I regret that in the autumn of 1839 I did not more frequently give emetics in the forming stage of fever and in the severer forms of diarrhœa. Emetics have been too much neglected of late years in the early states of fever, at least by me. During the fall of 1840 there were upwards of 20 cases of fever among the soldiers. These cases were ushered in with nausea, loss

of appetite, giddiness in the head, and some had vomited. In these instances they took gr. i ant. tart. with grs. xxx pulv. ipecac., with the highly satisfactory result of cutting short the disease in every case but four, and some of these last were obviously benefitted by the emetic.

Recoveries from the fever were rapid. No sequelæ interfered; and good diet with light bitter infusions were all sufficient.

Pulmonary Diseases.—Nearly 600 cases of catarrh are on the register, and no death from that cause; of acute or chronic bronchitis none died; of 26 cases of pneumonia two died, and one of pneumonia typhoides. In several points of view these pulmonary diseases are interesting. Frequent as was catarrh, it is remarkable that it was so harmless, and that it did not terminate more commonly in pneumonia and bronchitis. The proportion of these two last named diseases was small—in all 50 cases in a command averaging 450 for 26 months—and the fatality still smaller, for the whole class of pulmonary diseases occasioned only six deaths.

The number of cases of phthisis developed in the command was very small. The general opinion is, that, in a climate so cold and in the fall and spring so variable in temperature, phthisis is a more common disease than it is further south. A greater development of the disorder might reasonably have been expected. I cannot call to mind more than one case, the seeds of which were not in existence previous to enlistment; nor did other pulmonary inflammations and irritations seem to have the least influence in developing tubercular degeneration. Including what appeared in the families there were full 3000 cases of disease in twenty-six months, in a cold and variable climate, and six cases of phthisis occurred, nearly all of which were in active predisposition or in actual pulmonary irritation at the time of enlistment.

Relative circumstances have excited in me on this subject painful interest, leading me to close inquiry. During my service on the frontier, for now upwards of two years, I have endeavoured to ascertain, from every source, the amount of phthisis that exists between latitude 42 and 45, and on the lake shores as well as in the interior, with a view to compare the frequency of the disease here and in milder regions of the United States. I have inquired of intelligent medical men, of residents who, from the earliest settlements, had opportunities of judging, and from these, the best sources of information that can now be had, I am convinced that phthisis is not more common in this latitude than in Virginia; and that pneumonic inflammation generally is much less so, especially that formidable disease *bilious* pleurisy. I have not observed that, among families from the south who have resided or remained for some years here, the climate had any influence in exciting tubercles. On this subject it is exceedingly desirable to collect satisfactory information. The British army reports, already alluded to, have thrown some important and unexpected light on this subject. Their tables show that there are more lung diseases among the troops stationed in the island of

Bermuda and in the Mediterranean than among the forces in the North American provinces, and similar results grew out of other comparative observations, and this too while advantages of barracks, &c., was in favour of these stations in the mild latitudes. I know that professional and popular sentiment are not prepared for this, yet what I have learned from the most credible sources satisfies me that we have yet to learn much on this point.

Rheumatism occupies a conspicuous place in the list of diseases, yet affords no matter for remark. The cases were, with few exceptions, slight.

Delirium Tremens.—One case is recorded. The reader will scarcely believe that in such a command, and for such a length of time, but one soldier would have delirium tremens. The term "Intemperance" was affixed on the register opposite three names, but I could not trace the cases precisely. That many soldiers had this affection is very certain, but they were cured in the guard-house without appearing at sick call. It is well known that ardent spirits of a wretched quality is exceedingly abundant and cheap on the frontier, so that there was no lack of subjects disposed to indulge, nor of the means of gratifying, their propensities. Be that as it may, there was no delirium tremens, or, if there were, the remedy was the guard-house.

Liver Disease.—The British reporters remark with much point that if intemperance caused liver disease, it should prevail to great extent in Canada among soldiers. Such, however, is not the fact, it is exceedingly rare among them. Not a case is found in our tables. Concurrent causes appear to be necessary to engender hepatic disease, for the same amount of intemperance in the West Indies would excite a great deal of that affection. A few cases of *icterus* are noted, but they were seen during the prevalence of autumnal fever. It is very common in the southern states to see, during the autumn, persons going about perfectly but harmlessly jaundiced. The cases in our table were forms of the malarial disease then rife, and not the effect of abuse of ardent spirits. One complication of hepatic disease I have never seen here, the bilious pneumonia, a disease not only frequent in the malarial regions of the middle states, but very fatal in some seasons. It is curious to see, that while malarial diseases are so perfectly displayed in the intermittent forms of fever and the continued in this northern climate, they have never been, to my observation, sophisticated as they are to the south with concomitant and consequential complications in which the liver is so conspicuously concerned.

Table exhibiting the Principal Diseases, and the Mortality at Madison Barracks, Sacket's Harbour, N. Y., from Aug. 5th 1838, to the 30th Sept. 1840.

Months.	Bronchitis Acute.	Bronchitis Chronic.	Catarrh.	Tonsillitis.	Diarrhœa.	Fever Intermittent.	Fever Continued.	Fever Inflammatory	Icterus.	Lumbago.	Ophthalmia.	Rheumatism.	Pneumonia.	Pneum. Typhoides.
1838.														
August	-	-	2	-	8	1	5	2	-	-	-	2	-	-
September	-	-	21	-	56	23	3	1	1	-	5	5	-	1
October	-	-	70	5	26	16	-	-	-	-	1	6	-	-
November	-	1	35	2	40	7	4	-	-	-	1	5	2	-
December	-	-	29	-	16	1	1	-	-	-	2	11	-	-
1839.														
January	-	-	19	3	10	2	-	-	-	-	1	6	4	-
February	-	-	11	-	3	-	1	-	-	-	-	9	-	-
March	-	-	21	1	6	5	-	-	-	-	1	4	1	-
April	-	1	19	-	52	22	2	-	-	2	7	10	-	-
May	-	1	37	1	37	58	5	-	-	-	3	7	2	-
June	-	-	19	4	72	20	5	1	-	-	1	8	2	-
July	-	1	26	1	68	15	11	-	2	-	1	12	2	-
August	-	2	11	2	113	8	19	-	1	-	4	2	-	-
September	-	-	10	3	38	6	42	-	3	2	-	4	-	-
October	-	-	15	2	51	5	46	-	3	2	1	6	1	-
November	4	-	22	2	36	10	14	-	2	-	2	4	2	-
December	4	-	33	3	24	1	3	-	2	-	5	6	-	-
1840.														
January	5	1	31	-	13	2	2	-	1	-	-	6	2	-
February	-	-	34	3	15	1	-	-	-	-	2	5	1	-
March	1	-	28	-	26	4	-	1	2	-	9	8	2	-
April	6	1	46	-	27	7	8	-	-	-	8	3	1	-
May	-	-	-	-	-	-	-	-	-	-	3	-	1	-
June	-	-	-	-	-	-	-	-	-	-	-	-	-	-
July	-	-	-	-	9	-	-	-	-	-	3	3	-	-
August	-	-	1	-	7	2	4	-	-	-	-	2	2	-
September	-	-	2	-	15	-	13	1	1	-	-	2	1	-
Total	20	8	542	32	768	216	188	6	18	6	60	134	26	1
Deaths					3		15					1	2	1

The following table exhibits the diseases not included in the preceding one, and accidents which occurred at Madison Barracks, during the period embraced in this report, with the number of cases of each, and their mortality.

	No. of cases.	Deaths.		No. of cases.	Deaths.
Abscess,	68		Contusion,	70	
Asphyxia,	1	1	Debility,	11	
Atrophy,	1	1	Delirium Tremens,	1	
Burns,	7		Dysentery,	3	
Cephalæa,	26		Dyspepsia,	7	1
Cholera Morbus,	4		Dysuria,	4	
Colic,	22		Epilepsy,	3	
Concussion of Brain,	3	1	Erysipelas,	3	
Constipation,	38		Fistula Ani,	3	

	No. of cases.	Deaths.		No. of cases.	Deaths.
Fracture,	9		Peritonitis,	3	2
Frost bite,	24		Phrenitis,	1	1
Gonorrhœa,	33		Phthisis,	6	3
Hemorrhoids,	9		Rubeola,	1	
Hernia,	4		Scabies,	44	
Herpes,	44		Scrofula,	3	
Hydrocele,	1		Secretive Urethra,	1	
Insanity,	6		Splenitis,	1	
Inverted nail,	2		Spinal irritation,	1	
Luxation,	8		Sprain,	53	
Nyctalopia,	2		Syphilis primary,	12	
Odontalgia,	5		do. secondary,	6	1
Orchitis,	6		Tinea Capitis,	1	
Otitis,	15		Ulcer,	32	
Paralysis,	2		Urticaria,	3	
Paronychia,	9		Wounds,	144	

Total number of cases 2810, deaths 33, being 1 death in every 85 sick. Total cases of febrile diseases 410, deaths 15, being 1 death in every 27 cases.

In May and June, 1840, there were only two skeleton companies of the 8th regiment left. They rapidly filled up to 150 men.

The cases do not include those that occurred in the families of officers and of laundresses.

Twenty-five were discharged the service during the period embraced in the report, and for the following diseases:

Chilblains,	2	Joint weakness,	1
Diarrhœa, chronic,	6	Ophthalmia,	4
Dyspepsia,	1	Phthisis,	1
Hernia,	1	Paralysis,	1
Hydrothorax,	2	Rheumatism,	2
Insanity,	3	Scrofula,	1

ARTICLE IV. *Case of Absence of the Uterus.* By E. P. BENNETT, M. D., of Danbury, Connecticut.

IN December, 1833, I was called upon to prescribe for Miss ———, a young lady of about 18 years of age, for retention of the catamenia. She had suffered regularly every month, for the last two years, the usual symptoms of indisposition attendant upon menstruation. She was well formed, of good stature, with well developed breasts. I prescribed for a length of time the usual remedies in such cases, but contrary to my expectations, without the least benefit. Her general health was improved, but the menses did not appear. The obstinacy of the case led me to suspect organic obstruction. I mentioned this to her friends, and proposed an examination, to which she finally consented. The external organs of generation

were perfectly developed in every respect, and perfectly natural. Upon introducing my finger into the vagina, I found that this canal terminated in a cul-de-sac, at the distance of two inches from the os externum. It did not appear like a membrane stretched across this canal, but like a complete obliteration of it. There was no indication of any accumulation of menstrual fluid behind it, although there was a slight enlargement of the abdomen. I introduced a common lancet into this substance the length of the blade, but it penetrated into no cavity; the hæmorrhage was considerable, and as I had had no experience in such cases, I desisted from doing any thing more. Soon after this my patient married, and I lost sight of her for several years. In August, 1840, she again applied to me for relief. She stated that she had enjoyed poor health generally, but occasionally she had had *monthly periodical discharges of blood per anum*, which relieved her, but of late they had entirely ceased. I examined her again, and found her in exactly the same condition as before marriage, only the finger could be introduced a little farther by carrying the obstruction before it. I then introduced a finger into the rectum, and a silver catheter into the bladder, and searched for a uterus, but could detect nothing of the kind, my finger coming in contact with the catheter, as in the male subject. In consequence of the discharges from the rectum, I thought there might possibly be a communication between the uterus and rectum, but I could detect none. I accordingly concluded that the uterus did not exist, and that the development of the external organs and breasts, and the presence of venereal desires were produced by the ovaries alone. I stated to her and her husband my views of her situation, explaining the dangers, difficulties, and the uncertainty of an operation, and dissuaded her from having any thing done. In a few days her husband called upon me, and said that she was resolved upon an operation, be the consequences what they might. In compliance with her earnest desire, but contrary to my own judgment, I proceeded to operate, assisted by my kind and judicious friend, Dr. A. L. Williams, of Brookfield. I placed her upon the edge of a bed, with her feet upon two chairs, her knees supported by assistants. I then introduced a silver speculum of three-fourths of an inch diameter with some difficulty, (as the vagina was quite narrow,) then with the aid of a strong light I proceeded to make an incision with a scalpel, which I had previously prepared, by making a cutting edge upon the end. The substance was very dense and firm, and required considerable force to push the knife onward, which I did in a very cautious manner, until I had made an incision large enough to admit the point of the index finger; then with a finger in the incision and one in the rectum, I examined to see where I was. I then withdrew my finger from the rectum, and by moving the catheter in the bladder, found that as yet I was going correctly. In this way, by cutting, tearing, dilating, and examining, I proceeded on until I had penetrated about three inches into this substance, when the knife appeared to enter a cavity. I suspected at once that I had entered the cavity of the

abdomen, but upon introducing a male silver catheter, straightened for the purpose, I found that it stopped abruptly after entering about six or seven inches from the external orifice. Considerable hæmorrhage followed, and she complained of severe pain in the bowels and loins. I introduced my finger, which passed readily up the whole length, but could detect no uterus. I introduced a gum elastic tube, the size of the ring-finger, six or seven inches, put her to bed, and gave a pill of opium and calomel. She wore this tube for six weeks, during which time it was taken out several times, and an endeavour to introduce a larger one made, but this was impossible. So great was the tendency to contraction, that if the tube was left out for two or three hours, it was very difficult to introduce it again. She suffered much from pain and inflammation in the bowels, having several attacks, which were relieved by venesection, calomel and opium. At the end of six weeks she discontinued the tube, and the incision soon closed, so that she is now in the same condition as before the operation.

[The preceding case is an exceedingly interesting one, and the careful manner in which the examination was conducted, as well as the condition of parts developed by the operation, seem to leave no room to doubt that the uterus was entirely deficient.

It may not be considered entirely out of place here to invite attention to operations performed to gratify the wishes of patients—or, as they are termed by the French, "*Opérations de complaisance.*"

It has been remarked, and we believe on good foundation, that such operations rarely terminate favourably; and although that performed by our correspondent be an exception to the rule, a sufficient number of cases might be cited from the records of our science to establish its truth. A few of these we shall briefly notice.

In January 1829, a man, 21 years of age, entered the *Hôtel Dieu de Paris* with a congenital deformity of his right leg, and urgently begged that the limb might be removed. The pain and risk which he would incur were fully represented to him, but as he still persisted in desiring the operation, Dupuytren amputated the leg. The patient was young, and his constitution good, nevertheless the result was fatal.

Sabatier amputated a leg in a similar case, and the termination was equally unfortunate.

Dupuytren has seen the most severe consequences from the amputation of a malformed toe; and death to result from the extirpation of a supernumerary finger.

Dr. Desgranges, of Lyons, reports a case of urinary calculus, in which he operated to satisfy the urgent desire of the patient, and death followed on the third day.

One of the most striking cases we remember to have met with on record, is that of a servant who entered the Hôtel Dieu de Paris, with an ulcer of

his leg of many years duration, which he had long sought in vain to have permanently healed; and as it gave him much inconvenience, he solicited Pelletan to amputate the leg. This distinguished surgeon at first refused, but ultimately yielded to the urgent importunities of the patient, after fully representing to him the sufferings and risks he would incur. For a day or two every thing seemed to promise success, but serious symptoms then supervened, violent inflammation of some important organs took place, and the patient was soon conveyed to his tomb. Just before his death, he collected his strength, and, rising up in his bed, with an eloquence which could not have been expected from an uneducated man, he reproached Pelletan in the severest terms for having been so weak as to yield to his solicitations to be operated on. Having uttered this censure, he fell back and expired. Pelletan was deeply affected, and long remembered the painful scene.

It seems to be considered by most surgeons, that, when they have laid before their patient all the risks of an operation, if he still desires its performance, they are relieved from all responsibility as to the result. Even if this were the case, which we are not, however, prepared to admit it to be to the full extent, still the consciousness of having hastened the death of a fellow-creature, must be a most painful feeling to a sensitive mind. This consideration should be sufficient to deter surgeons from performing unnecessary operations, and lead them firmly to refuse to operate merely to gratify patients.]—Editor.

Article V. *On the Milk Sickness of the West.* By Geo. B. Graff, M. D., of Edgar county, Illinois.

Occurring, as the milk sickness universally does in our frontier settlements, where medicine as a science is in its infancy, and its practice too much in the hands of the ignorant, we have had very imperfect accounts of the affection, either as regards its history, symptoms, or means of cure.

A few imperfect essays recorded in our medical journals, constitute every thing that I have ever seen offered to the public on this subject. The earliest history of it that I have noticed, is mention made of a singular disease affecting cattle, by Bishop Hennipin, a French missionary, who ascended the western rivers early in the last century. He knew of it only as causing the death of cattle with singular and often very violent symptoms.

The only name by which it is known, is that which I have used, which is quite objectionable, as it may serve to convey an erroneous impression by the supposition that milk only could produce it; whereas, the flesh

of an infected animal acts with an equal degree of violence and rapidity. It is greatly to be desired that we should have for it a name which would be more appropriate, drawn either from the localities in which the disease is found, or from some distinctive character of the affection.

It is a disease peculiar to the United States, occurring seldom, if ever, to the eastward of the Alleghany mountains. It is in a greater or less degree met with in all the western states, as far south as Mississippi, and extends north to the boundary. The states of Indiana and Illinois are most subject to its occurrence, whilst its existence in the bordering states is comparatively rare. As I have already stated, from the want of medical intelligence and enterprize in these sections, the knowledge which we possess of its early history has been obtained only as a portion of the history of those neighbourhoods in which it presented itself; and in those instances it would have passed into forgetfulness, but for the dreadful ravages it committed in the diminution of the numbers of the early settlers. In the first formation of our western settlements, its prevalence often served as a cause to disband a community, and compel the inhabitants to seek a location which enjoyed immunity from its occurrence. Many of the otherwise most desirable portions of that country remained long exempted from settlement, and even now the inhabitants of these localities have, as a condition of their residence, entirely to abstain from the use of milk, its preparations, and the flesh of their cattle.

Its occurrence or prevalence is confined to no season, or description of weather, existing in a like degree in the heat of summer or cold of winter, and with like virulence and frequency during a dry or wet season. An opinion is entertained by some, that it is more frequently met with in the spring and fall months, whilst others have expressed a belief of its more common occurrence during the heat of summer. However this may be, we know of no season during which it does not occur.

The animals in which it has been observed are the beef cattle, horses, sheep, and goats, which seem to acquire it with their food or drink.

We will first speak of the *symptoms* manifested in cattle affected with it, as it is only through them that we have yet found the disease communicated to man. They may be affected to such a degree as that their flesh and milk will produce the disease, and yet they themselves manifest no unhealthy symptoms whatever. This latent condition of the disease may be discovered by subjecting the suspected animal to a violent degree of exercise, when, according to the intensity of the existing cause, it will be seized with tremors, spasms, convulsions, or even death. This is a precaution practised by butchers in these countries, always before slaughtering an animal in anywise suspected of the poisonous contamination. An ordinary degree of exertion will not develope these phenomena unless it produce the symptoms usually preceding a fatal termination. When for instance a cow is sufficiently deeply affected, nothing peculiar is observed until immediately pre-

ceding the outbreak of the fatal symptoms. She is then observed to walk about, without any apparent object in view; all food is refused, and there is evidence of impaired vision. The eye is first of a fiery appearance, increasing to a deepened red colour, until the animal is observed to stagger and fall, when, if she rise, the trembling of the whole muscular system will prevent the maintenance of the standing position. The animal usually dies after repeated convulsions, never lingering beyond a few hours. Often it falls suddenly, as if it received a blow from a heavy body on the head, and death is produced in a few minutes.

From the tremulous motion imparted to the muscles, the affection has received the common name of the "Trembles" in cattle. A case which was characterized by the great violence of its symptoms, I had an opportunity to examine very shortly after death. The brain I found suffused with a large quantity of fluid blood, which, from the amount contained within the cranium, must have made great pressure on every part. Unacquainted as I was with the healthy appearances of the other tissues, I could not speak of any changes existing in their appearance or structure.

In man the symptoms differ from these, and are varied. The length of time found to elapse from the reception of the cause to the appearance of the disease, is dependent on a multiplicity of circumstances, as the age, sex, or condition of the patient, and violence of the poison. It may be developed early as the third, or deferred until the tenth day. As a premonitory symptom, a peculiar and indescribable fœtor from the lungs is the most prominent, and so universally have I found it present and to precede the disease, that in almost every instance where I have been brought in proximity to a person predisposed or attacked, have I been able to foretell its approach, and pronounce on the character of the disease. This fœtor can no more be mistaken by a person accustomed to it, than that which is so universally attendant on variola; and it may in fact be safely stated to be pathognomonic of the forming and early stage of milk sickness. This halitus from the lungs, which I have never found entirely wanting even some days previous to an attack, increases in intensity until the disease is fully developed, when it gradually disappears with the specific symptoms, and at the termination of four or five days cannot be detected. A person labouring under the peculiar effluvia from the air passages, in many cases complains of no illness, and appears entirely unconscious of his situation, unless advised of it by his friends or attendants. His appetite may be, and usually is, destroyed; and after the lapse of a few days he is taken down with pain and excessive irritability of the stomach, obstinate constipation of the bowels, a cessation of all biliary secretion, general febrile action, sometimes an intense burning sensation in the epigastric region, with early and obstinate coldness of the extremities. Often the symptoms are observed to differ widely from these. Besides the peculiar smell emitted, there is a premonition of the attack; for some days previous to its development, the patient experiences a restlessness

and uneasiness which he cannot describe; there is a frequent moving about without any definite object in view, and he finds it impossible to confine his attention to any subject or employment. He feels, and often expresses a dread of some impending calamity; starts at the slightest noises; his temper is always irritable; his lip is seen to quiver when he attempts to speak, and all his motions are characterized by a nervousness, and are quickly performed. This state of things gradually increases in severity; his ideas are much confused; he suffers greatly from a want of words to express his meaning, with every evidence of a deep and somewhat peculiar state of cerebral irritation. Added to these there is a severe pain in the head, attended with tinnitus aurium, suffusion of the eyes, and intolerance of light. Vomiting announces the onset of an attack, and consists at first only of the contents of the stomach, which are violently ejected. Some bile may or may not be discharged, it is for the most part absent, and in some instances I have seen large quantities of dark coloured and viscid bilious matter thrown up; but it continued for only a short time, when it ceased, and all evidences of its secretion are absent until it be restored by the action of remedies. Vomiting at short intervals continues for many days, consisting of the fluids swallowed, mixed with a glairy mucus, and not unfrequently tinged with blood. Some days frequently elapse before pain in the stomach is complained of, but during the time the suffering is intolerable, consisting of a sensation of deep distress, which, though referred to the præcordia, or abdomen, the sufferer cannot locate in any particular spot. Pain in the limbs is complained of, and is severally referred to each of the extremities, but is more constantly located in the spine, particularly at the nape of the neck. The pulse during the forming stage, possesses greater force and volume, with slightly increased action. Upon the commencement of vomiting, it becomes greatly accelerated, is quick and frequent, and varies in different cases with the degree of inflammatory action existing, and the means of treatment employed. The bowels will remain obstinately constipated, the powers of nature being incompetent to relieve the condition, so that unless it be done by appropriate remedies, at the end of six or eight days an offensive discharge takes place, quickly followed by dissolution, the symptoms being those which would indicate disorganization of the structure of the intestines. The tongue, during the initiatory stage, is slightly furred, but otherwise not much changed in appearance. This coat disappears soon after the occurrence of vomiting, and becomes clean, of a pale red or pink colour, greatly resembling a piece of raw veal. Next to the fœtor mentioned, the change of volume occurring in the tongue may be viewed as the great characteristic of this disease. It rapidly attains an inordinate size, completely filling the mouth, and so flabby and soft in its texture as to retain perfectly the impressions left by the teeth, when extruded. Often a number of efforts are necessary before it can be forced out, and then it has a tremulous motion. This condition of the tongue changes with the stage of the disease. When the vomiting has been sus-

pended, and free evacuations from the bowels obtained, it is reduced in volume, the surface is for a time smooth and glazed, soon after becomes dark, cracks open in transverse fissures, is hardened with an obstinately dry and rough surface. Of all the primary symptoms, vomiting is the last to disappear; it ceases very gradually to annoy the patient, and its continued absence is the most certain indication of a state of convalescence. In no disease is there a greater difference or diversity of symptoms than are usually found in different cases to constitute what may be properly termed the secondary stage of milk sickness.

The economy at large seems to suffer in proportion to the intensity of the vascular and cerebral excitement, with the local direction impressed on them, as well as from the remedial means found necessary to be employed during the course of treatment. Simultaneous with the disappearance of the peculiar odour emitted from the lungs, the disease loses all its specific characters, and the system seems to labour to recover from the injury inflicted upon it. Often the symptoms are those evincing only extreme debility of the powers of animal life, with general functional disturbance. In other cases the patient is affected with drowsiness, low muttering delirium, nervous tremors, and that whole train of cerebral disturbances which indicate a low typhoid condition of fever. This latter condition occasionally follows all modes of treatment, but is particularly liable to present itself when a due degree of depletion has been neglected, or the efforts to evacuate the bowels have not been sufficiently vigorous, and will most readily happen during the winter, and early in the spring. In this stage the skin is hot and dry, or cool and moistened, with a clammy and particularly offensive secretion. The coldness of the extremities will be found to remain until the condition of, and disposition to, congestion is entirely broken up. The degree of sensibility of the bowels on pressure is extremely variable; sometimes an application of it in a moderate degree being attended with pain, and at others none at all. The volume of the bowels is increased, and they have externally a soft doughy feel, and one of the most common appearances is a regular pulsation of the entire abdomen, seeming to be greatest at a point to the right of the umbilicus.

Frequent fits of extreme restlessness occur which cause much suffering, the distress increasing until entirely relieved by the vomiting up a few ounces of a dark coloured fluid, much resembling coffee grounds; after which the patient soon relapses into his former state of stupor or insensibility to all surrounding objects. When this latter symptom has been present, I have never witnessed a case of recovery. It seems to occur in those instances in which the liver was primarily deeply engorged, and I have not observed it when the biliary secretion had been completely established. According as the establishment of the secretion has been early or retarded, are the chances of recovery, and mildness of secondary symptoms in a direct proportion. When recovery does ensue from severe cases of this affection, it is tedious,

and years are often required to restore the patient to his wonted health and vigour. Indeed it has been a question with many, whether those once severely attacked ever regain a perfect integrity of constitution. In cases which terminate fatally (of which description is a large majority) a length of time of from one to four weeks is required, proportionate to the intensity of the primary effects, the propriety of the treatment, and the natural powers of the resistance of the constitution, as they often seem to die from a wearing out, or gradual destruction of cerebral and nervous energy. Those cases which occur during the summer months, are most decidedly inflammatory, whilst in the winter there is always observed a disposition to assume a low form. The autumnal cases, in their secondary fever, are liable to assume a remittent aspect, and I have seen them eventuate in a well marked intermittent. When recovery has taken place, the patient retains not the slightest recollection of any thing which occurred during the progress of the disease, and this forgetfulness often extends as far back as some days previous to the active development of the disease. In a single instance, and the only one of which I have ever heard, I witnessed incurable insanity to follow an attack of milk sickness, although the case was throughout attended with unusually mild symptoms.

The first evacuations obtained are watery, small in quantity, and almost without smell. When bile begins to be discharged, their colour changes from a light appearance to a green or darker one; they become consistent, and extremely and insufferably offensive. The quantity of the secretion of urine is throughout diminished, and at times almost suspended. At first it is observed to be high coloured, and deposits a very copious precipitate of acicular pink crystals, whilst in the more advanced periods of the disease it is colourless, and on standing very soon precipitates a quantity of mucus, without a change of colour. Nothing can be more widely different than the appearances of the blood drawn at different stages of the disorder. Taken at the onset of the attack, it is found dark, thick, and rapidly coagulates, presenting the buffed coat, well marked; the coagulum likewise contracts, and is deeply cupped. The quantity of serum is proportionately small, is invariably of a bright yellow, or even orange colour. This character is maintained, though in a degree less marked, for two or three days, when it greatly changes. The serum is found to predominate, is of a red colour from the red globules, which do not separate from it; the coagulum is quite small; long in separating; may be easily broken up, and presents a brown, gelatinous appearance.

Cause.—The cause of this disease in animals is as yet shrouded in mystery and uncertainty. No satisfactory account of its nature has ever yet been given, and it has in turn been supposed to be of vegetable, mineral, and even aerial origin. The limits of its prevalence is not often over a large continuous tract of country, but rather circumscribed, and surrounded by localities never known to produce it. No example is known in which the

property of producing the disease has been acquired by any locality which did not previously possess it. The boundaries which were at the first discovery of the country found to separate the infected from healthy districts, remain unchanged. The locality which serves to produce the disease, most commonly extends as a vein of variable breadth, traversing the country for a considerable distance. It can be traced in one instance for nearly a hundred miles, running parallel to the course of the Wabash river, in the state of Indiana.

Again—it will be found to occupy an isolated spot, comprised in an area of one hundred acres, whilst, for a considerable distance around, it is not produced. Thus having the locality perfectly circumscribed, much labour has been expended in order to discover some production peculiar to the locality. The search has been uniformly unsuccessful in the attainment of its object. The general appearance of these infected districts is somewhat peculiar. I have always observed that the situation of the ground is elevated above that of the surrounding country, occupying what is denominated a ridge, and that the quality of the soil is in general of an inferior description. The growth of timber is not observed to be so luxuriant as in situations otherwise similar, but is scrubby, and stunted in its perfect development, in many instances simulating what in the west is denominated "Barrens." Throughout the entire district in which these localities are interspersed, there is observed an absence of the occurrence of stones scattered over the surface, whilst in the infected tracts they are almost universally present. They are of a small size and darkened aspect externally, breaking with a regular and shining fracture, and, upon analysis, imperfectly made, were found to contain a considerable portion of iron, with slight traces of copper. Another more decided and peculiar appearance which serves to distinguish them from other spots, is the breaking forth of numerous feeble springs, furnishing but a trifling supply of water, but not varying in quantity with the change of seasons. In its appearance, it presents the general evidences of a sulphurous and ferruginous contamination.

Experiments made upon the water collected from these springs, or more properly called oozes from the soil, with the greatest care by the employment of the most delicate chemical re-agents, failed to indicate the presence of any mineral except iron, sulphur, traces of magnesia, and a quantity of copper barely capable of being demonstrated. A belief being entertained by many that the disease is occasioned by arsenic, or some of its salts, I with much care and patience subjected not only the water, but likewise the earth, from these districts to a most rigid examination, and by no test was I furnished with the slightest evidence of its presence.

An intelligent medical friend expressed to me his belief that it was produced by the inhalation of some noxious gases generated during the night; in proof, he stated that he had observed cattle, which were regularly housed each evening, escaped its attacks, and that when suffered to remain at large,

they were frequently seized with the disease. It is difficult to form this belief of the nature of the cause, as we can hardly conceive the particular action of any combination of circumstances, capable of giving rise to such an emanation only at night, ceasing to act during the day. The most popular belief is in favour of a vegetable origin. The advocates of this method of production having failed to designate the plant which they supposed occasions it, have endeavoured to sustain their views by supposing that the poison exists in some shrub or tree, which is eaten by the cattle, but confess their inability to designate any such peculiar growth confined to these localities. If certain fields which are known to affect cattle fed upon them, be suffered to grow in grass, and the hay produced be given to them for their continual food, no disease results, which is a strong circumstance, unless it be urged that the active poisonous principle is destroyed by the desiccation. Again, it has frequently appeared with its greatest virulence when the ground has been for weeks previously covered with snow.

For my own part, I would most willingly subscribe to the opinion that some mineral, or mineral combination possesses the agency of its production. Yet I confess that I cannot even imagine what must be the nature of that substance producing such violent and anomalous effects, and in its operation so unlike any thing with which we are acquainted. The cause, whatever it may be, when it enters the organization of the animal, either by inducing a specific action in the tissues of the economy, or by a combination with some of the elements of the body, forms a poison not more violent in its operation than singular in the effects it can produce. If this cause should prove to be a mineral, it must be one of great subtlety from its difficulty of detection, and from its virulence it must possess qualities and activity not equalled or resembled by any metal or metallic combination yet discovered. No substance, of which we possess any knowledge, will produce like phenomena. Hoping, that if I could succeed in developing the same symptoms and effects by some active or poisonous article, it might, by the probable analogy of the agents, lead to the discovery of the nature of this poison, I patiently tried many. The action of none of the mineral poisons were found at all similar. My experiments were chiefly made on dogs, and in them I found the symptoms, immediately preceding their death, occasioned by a fatal dose of strychnia, greatly to resemble those produced by the continued administration of the flesh of an animal which had perished from milk sickness. The appearances on dissection differ in a greater degree, and particularly in that cases of poisoning by the vegetable proximate principle exhibit the blood in a state more nearly resembling a healthy condition. With the view to an extensive series of experiments, I procured the body of a full grown cow, which had perished suddenly from the affection, with violent symptoms. The brain was immersed in a copious effusion of blood, and in no portion of the body was it found coagulated. The flesh in external appearances did not differ from that of healthy beef, unless that it was

slightly darker, and a thin bloody fluid continually dropped from it. By exposing it by the side of a healthy portion, I found that the influence of the sun rendered the specimen from the diseased animal offensive, and turned it to a greenish hue, whilst the other remained comparatively sound and unaffected. It can possess nothing peculiar in its taste, for persons who have partaken of it have not remarked any thing unusual, and animals will exercise no preference, if the two descriptions be simultaneously presented to them. The beef which I procured was subjected to the ordinary process of salting, which did not in the least affect its poisonous properties.

Butter and cheese, manufactured from the milk drawn from an infected cow, are supposed to be the most concentrated forms of this poison. They possess no distinguishing appearance, odour, or taste, from the healthy article. A very minute quantity of either will suffice to develope the disease in man. The cream, ordinarily sufficient to be added to the coffee drunk at a single meal, is said to have induced an attack. The butter or cheese eaten at one repast, has frequently been known to prove effective. The property is not contained in any of the elements of the milk exclusively, but distributed throughout the whole of them, being possessed by the buttermilk as well as by the whey. Beef, in the quantity of a very few ounces, will produce the disease, and it is generally believed in a more violent and fatal form than when it is produced by milk, or any of its preparations.

In the course of my observations I had an opportunity to experiment with a cow suffering in but a slight degree from the cause. She was affected with tremors when unusually exercised, exhibited a red and suffused eye, with frequent twitches of portions of the muscular system. She was kept confined without an opportunity to exercise, and was fed upon ordinary food. At the end of eight days, the milk drawn from her possessed as violent poisonous properties as at the time of her incarceration. Her confinement was continued for a week longer, at the end of which period, the milk taken from her was found in an entirely healthy condition, and the eyes were restored to their natural appearance. In this instance it will be seen that the property of imparting the poison to the milk was lost in the space between eight and fifteen days. We, of course, cannot fix on the precise period, but we would infer that the property is suddenly destroyed rather than gradually dissipated.

My trials with the poisoned flesh were, for the most part, made upon dogs, which I confined, and often watched the effect of the poison when administered at regular intervals. In the space of forty-eight hours from the commencement of the administration of either the butter, cheese or flesh from poisoned animals, I have observed unequivocal appearances of their peculiar action. In a few hours, a thirst greater than natural is created, the appetite remains unimpaired until the expiration of the fourth or fifth day, or just before the appearance of fatal symptoms, the animal will refuse drinks and the most inviting descriptions of food.

Vomiting does not, as in man, always precede death, but the bowels are constipated throughout, except that, in a single instance, I observed copious alvine discharges largely mixed with blood. One ounce of butter or cheese, or four ounces of beef, either raw or boiled, administered three times a-day, will certainly prove fatal within six days, and often earlier. In these cases all exertions and exercise must be prevented, or death will occur much sooner, even as early as the third day. When an animal has been subjected to its influence for only a short time, and is induced to fatigue itself, or is driven a distance at full speed, he suddenly stops and falls, and the severity and duration of the convulsion or spasm is in proportion to the intensity of the action of the poison. Often he will appear to entirely recover from the first attack, but to be repeated upon the renewal of the exercise to a sufficient degree. With a dog in this situation, I endeavoured to keep him under a moderate degree of its influence, giving the flesh in very small quantities. Soon his stomach became so irritable that it rejected all solid food swallowed, but retained water, which he drunk in large quantities. In this state he lingered along, rapidly emaciating, taking no exercise unless compelled to move; he slept nearly the whole time, seemed lethargic, and lost entirely the remembrance of his former master. He died without a convulsion, and I instituted an examination of the post-mortem appearances, which may be found in the relation of Case II. Of the symptoms produced, I have observed a great diversity, but their difference can be accounted for by the amount of the poison administered, and, perhaps, the different degrees of susceptibility of the various animals experimented upon. One of the animals, which I proposed to destroy with large doses frequently repeated, escaped from confinement during the second day, and I saw him enjoying apparently excellent health some weeks afterwards. The effect of the poison must be manifested throughout the entire system, and vitiate all the secretions. An experiment, which went far to prove how deeply the milk of other animals is imbued with its poison, was made by administering the infected meat to a bitch suckling five puppies. The effect produced in them was very sudden, and the entire litter died in four days, which was two days before the occurrence of the death of the mother. I am inclined to believe that the poisonous principle exists in a more powerful degree in the muscular fibre, than in either the cellular or adipose tissue. I could observe great difference in the violence of the effects, when the same quantities by weight of either of these was administered.

The urine secreted by man during the first or inflammatory stage is highly charged with the poison. It is secreted in such a diminished quantity that it could not be sufficiently tested; but, by evaporating the small quantity obtained to the consistence of honey, I have succeeded in producing well marked symptoms, though in a slight degree.

That the flesh of a man dying with this disease should, if eaten, communicate it, we can believe, as that of the dogs destroyed possessed it in as high

a degree as the beef which first communicated it. In order to discover, if possible, whether the active principle may not prove to be some matter, the constitution of which might be determined by subjecting the poisonous flesh to chemical agents, numerous experiments were instituted, having this object in view. In one instance a quantity of the flesh was cut into small pieces, and subjected to the action of dilute sulphuric acid for two hours. It was then thoroughly washed with repeated quantities of cold water, and given to a dog; it seemed to have parted with none of its active properties. The same experiment was made with the other mineral acids, likewise with the tartaric, and with the like results. In succession, I treated the muscular tissues (as being the portion most actively poisonous) with the chlorides of lime and soda, the alkalies and tepid water, without apparently modifying the effect of the poisonous principle in the animal system. Heat when conjoined did not affect the result. I found one agent, and one only, which seemed to exercise the least perceptible action upon it. When the flesh was boiled for a length of time in a decoction of Aleppo galls, and afterwards carefully washed with water, I found it to be rendered comparatively innoxious; but even then a large quantity of it administered would produce slight manifestations of the peculiar effects of the prison. With this experiment to guide me in its treatment, I administered tannin repeatedly, and in large doses at the onset of the disease, but with such a result as convinced me of its doubtful efficacy.

Butter of a poisonous quality, subjected to such a degree of heat as to cause it to inflame, loses none of its virulent properties. With a view to ascertain if the poisonous principle was soluble or could be communicated to water, I boiled a large quantity of the beef in pure water for several hours, and afterwards evaporated the liquid thus obtained to the consistence of cream. Although this extract contained a large quantity of gelatinous matter, with some of the other constituents of the flesh, yet, on being given in large quantities, no perceptible effect was produced. From this we can draw the practical inference that this disease will not be communicated to man, even should he partake of soup made from an infected portion of beef. As far as my researches have extended, I have been unable to produce the disease by an inoculation with any portion of the body or secretions from infected animals. If we reason from analogy, we might incline to the opinion that some product of the diseased action would possess the power to reproduce it, and suppose it to exist in a concentrated form, as we have in the saliva of hydrophobia or the matter of variola.

That a matter possessing like activity may exist in some part not yet demonstrated, we can readily suppose, but we must wait for patient investigation to determine the truth or fallacy of the supposition. This subtle poisonous principle, of whatever it may be proved to consist, seems to possess the power of infinite reproduction, by some vital or chemico-vital

action of the system of those animals poisoned by its influence. Thus, suppose one pound of flesh to prove sufficient to produce the death of another animal, it will be found that each pound of flesh of that animal so destroyed, will possess as active powers of destruction, and will, in its turn, serve to contaminate the whole body of another animal in the same degree. I had wished to repeat this so often as to demonstrate the possibility of its reproduction *ad infinitum*. In this I failed, from the difficulty experienced in compelling "dog to eat dog." From what I have observed, I would say that there exists a power of generation of the poisonous principle in the animal economy. This primary impulse being received from the specific action of some substance, vegetable or mineral, by some means obtained from the soil.

There is, however, one animal, which, from some peculiarity of organization is rendered proof against the pernicious effects of this otherwise powerful agent. I allude to the hog. Most industriously did I feed a troublesome sow running at large, administering daily five or six pounds of infected beef. This was persevered in for more than a fortnight, and under the *treatment* she fattened, when I was compelled to desist from the great quantity necessary to supply her voracious appetite, without enjoying the satisfaction to perceive one muscular twitch as an evidence that it produced the slightest effect. When I last saw her, she enjoyed excellent apparent health, and was the mother of a numerous offspring.

Of the appearances presented on *autopsic* examination, I shall first speak as they were found in animals. For the sake of brevity, I shall notice only two cases, selected from a number made and recorded. The first is that of a young and healthy dog, which was fed on large quantities of poisoned meat regularly for three days, during which time he was kept perfectly quiet. At the end of this period he was taken out, and run violently a few hundred yards, when he was suddenly seized with a severe convulsion, and died in a few minutes, not having recovered sufficiently to be able again to rise to his feet. The examination was made one hour after.

The external appearance of the stomach and viscera of the abdomen was healthy, except that the intestines were much diminished in their calibre, and the former organ was reduced at least to two-thirds of its natural size. The mucous lining was of very pale red, or pink blush, and the appearance extended over every part. Blood in a considerable quantity was found upon the surface, and within the ventricles of the brain. The veins were distended with a dark liquid blood, and in no part was it found coagulated. The arachnoid membrane, when washed from the blood effused around it, was found to be very minutely injected, and in places rendered slightly opaque. No examination of the spinal cord was made. This will serve to give a general idea of the appearances in acute fatal cases. Of a number

examined, no one differed essentially from what we have described. When the medulla spinalis has been exposed, it gave evidences of recent irritation, and there was likewise a general phlogosed appearance of the liver, lungs, spleen, and kidneys.

The next examination to which I shall allude, is that of the case spoken of in page 360, having been one of long continuance. This examination was made three hours after death, when the abdomen being opened, was found to contain a quantity of bloody serum, and adhesions of a slight nature had been formed between the surfaces of the peritoneum. The appearance of the membranes indicated different degrees of inflammation in different portions, and in some spots it had assumed a dark and gangrenous aspect. The liver was of an extremely dark colour, distended with blood, and its texture was much softened. The spleen was more than double of its natural size, and its substance was easily broken up. The stomach was contracted to the size of an orange, with no portion of the lining membrane in a sound condition, being softened, and for the most part disorganized, but in no place perforated. This altered appearance of the mucous membrane became gradually less marked, as the examination proceeded downwards, and the lining membrane of the large intestines was nearly natural in appearance. Upon exposing the brain by removing the dura mater, there was found beneath it a layer of coagulable lymph and purulent matter covering its entire surface. In some portions the tunica arachnoides was found opaque, and so much thickened as to have changed its physical character. Within the ventricles, patches of coagulated lymph were effused. The substance of the brain, particularly that of the anterior and middle lobes, was found much softer than in health. The cerebellum seemed to have been a principal seat of the inflammatory action, although it retained entirely a healthy consistence. The medulla spinalis was exposed completely, and examined with care. Its membranes bore all the evidences of recent inflammation, and the substance of the cord was found minutely injected. Throughout the whole body the blood remained fluid, and at no place was the smallest coagulum to be discovered.

From all the experiments I have made and the reasoning used, I can arrive at no conclusion, so far as relates to the nature of the ultimate cause in man, to whom it can only be communicated through the medium of an animal, and that capability of production can be acquired only by the animals of circumscribed localities. An intelligent medical friend, alike distinguished as a statesman, Dr. John W. Davis, of Indiana, in a late letter to me, expresses a belief that milk is never a cause of the disease. He merely states his belief of the fact, without the evidences or observations which have led him to the denial of a proposition heretofore viewed as settled beyond dispute. My own experience enables me to say that I have seen a peculiar affection, which I feel assured could have been no other than the

milk sickness in a city remote from any of its local causes, attacking every individual who partook of a certain cheese which had been purchased from a wagon arriving from an infected district. In this instance the well marked symptoms, confined to those only who partook of this cheese, appearing nearly at the same time with no occurrence of new cases after the removal of this cause, all together afford strong evidence of the nature of the origin.

The instances just cited, occurred in Chillicothe, Ohio, in which place I met with a medical friend who had charge of a number of the cases. He expressed to me his belief that the disease was milk sickness, from what he had learned in relation to it, in addition to the fact that it was confined exclusively to a single house, sparing those inmates who did not eat of the cheese in question. At his request I accompanied him to see two of them, and, from every appearance and symptom manifested, I could not for a moment hesitate to form an opinion as to the real character of the disease. Fortunately the attacks were of unusual mildness, and but two cases out of thirteen proved fatal.

There is a murderous practice now carried on in certain districts, in which the inhabitants will not themselves consume the butter and cheese manufactured; but with little solicitude for the lives or health of others, they send it in large quantities, to be sold in the cities of the west, particularly Louisville, Ky., aud St. Louis, Missouri. Of the truth of this I am well apprized by actual observation, and I am as certain that it has often caused death in those cities, when the medical attendants viewed it as some anomalous form of disease, not suspecting the means by which poison had been conveyed among them. Physicians of the latter city, having been questioned particularly on this subject, have mentioned to me a singular and often fatal disease which appeared in certain families, the cases occurring simultaneously, and all traces of it disappearing suddenly, and which I cannot doubt were the result of poisoned butter or cheese. This recklessness of human life it should be our endeavour to prevent, and the heartless wretches who practice it should be brought to suffer a punishment commensurate with the enormity of their crime. From the wide extent of the country in which it is carried on, we will readily perceive the difficulties to be encountered in the effort to put a stop to the practice. This being the case, our next proper aim should be to investigate the nature of the cause, and establish a more proper plan of treatment by which it may be robbed of its terrors, and the present large proportionate mortality diminished.

Pathology.—Of the essential nature of the cause, its operation, and mode of treatment, each professional man has his own peculiar notions and belief. One who has had much experience in the disease, will recommend a remedy as proving in his hands eminently successful, which another equally experienced would assure us he found entirely to fail, or greatly aggravate the

symptoms. Indeed so much discrepancy is found to exist between the relations of different practitioners, that we can hardly believe the affection in their respective localities to be identical, were it not for the one continual concomitance of that peculiar odour from the lungs already dwelt upon, and which all recognize in the genuine affection. We may reconcile these discrepancies by the supposition that the differences can be accounted for in the variations of the intensity of the cause, and the modifications impressed upon it by locality, season, and climate.

Hundreds of persons throughout the west and southwest are annually perishing from its attacks. Owing to the want of success which has so uniformly attended the practice of their physicians, many of the inhabitants depend entirely on their domestic remedies. It is in that country emphatically one of the *opprobria medicorum*.

The primary operation of the poison seems to me to be on the brain and nervous system, and this is indicated by the cerebral irritation which so often precedes, and always accompanies, an attack, as well as by autopsic appearances. Without an exception, in the animals poisoned, I always found the brain and meninges phlogosed with a greater or less degree of inflammatory action.

A case which occurred in my own practice, I think, fully sustains the position taken, and settles the matter, that the first impingement is made upon the general nervous system. The circumstances of the case were as follows:— The entire family of a Mr. Frazier, moving westward, purchased a quantity of fresh beef in Indiana, of which every member of the company partook heartily daily until it was exhausted, which was the day on which they arrived in my neighbourhood, being the evening of the fourth day. In the evening they retired, apparently in their usual health; but, during the night, I was summoned to attend a female of the company who was advanced about six months in pregnancy. She was violently seized wiih pains of labour, and was prematurely delivered of a healthy looking fœtus at the moment of my arrival, which was in less than an hour from the commencemen of her pains. The abortion was characterized only by the violence of her throes and consequent severe suffering. No cause whatever could be assigned for its occurrence, her appetite had been good and health as usual, except a slight occasional palpitation of the heart, which she attributed to the fact that her bowels had remained constipated for two or three days previous. Not deeming my presence necessary, I returned home only to be summoned again before morning, when I found unequivocal symptoms of milk sickness had presented themselves. The peculiar odour was quite perceptible, and, probably from the fact that I did not suspect the existence of the disease at my first visit, I failed to detect it. Upon a careful examination, I discovered the smell present with every member of the family, and, on inquiry, ascertained about the beef and the locality in which they pur-

chased it, which at once satisfied me they were doomed. Before the next morning every member of that company of six was attacked in a violent manner, and only one of the number recovered.

The woman first attacked was the first victim, her death having been hastened by the supervention of a dark-coloured hæmorrhage from the uterus on the day of her death, which was the fourth of the attack. In this case I obtained an opportunity to institute a post-mortem examination. The viscera of the abdomen all bore traces of irritation and a slight degree of inflammation. The mucous membranes of the alimentary track were reddened in places, and the size of the stomach and the calibre of the intestines were somewhat diminished. The uterus had not perfectly contracted, and its walls wanted their usual degree of firmness; its lining membrane was darkened, and the surface was covered with a muco-gelatinous exudation of a light brown colour. Effused into the cavity of the peritoneum were a few ounces of reddened serum, and the membrane was discoloured, especially at the portions reflected over the fundus of the uterus. These appearances would not account for so sudden a death, and, on examination, the principal lesions were discovered in the brain. Occuping the ventricles, serum suspending flakes of coagulated lymph were found in a considerable quantity. The dura mater adhered to the membranes beneath it, and was detached with some degree of difficulty. The pia mater had so plenteously effused lymph upon its surface that it could not be separated from the arachnoid, which latter membrane in some places had lost its distinctive appearances. The substance of the brain itself was decidedly softened, and, upon examining a section of the cineritious portion, small and innumerable vessels deeply injected with red blood could be distinguished with the naked eye. The appearance of the liver was somewhat peculiar; it was deeply engorged, although depletion had been practised to its fullest extent; it was of a darker colour than natural, and the gall-bladder was distended with a large quantity of viscid bile. In connection with this latter appearance it is proper to observe, that none of this secretion was vomited at the onset of the disease, nor had the remedies the effect to restore a secretion of it.

This account must necessarily be imperfect from the fact, that the examination was made under disadvantageous circumstances, by stealth at night in the open air, and by the light of a single candle, and one assistant present.

I removed the brain for future inspection and exhibition, but the fact having been ascertained, the inhabitants insisted on a return of it, probably for the use of the deceased, and evinced their holy horrors of the practice of making post-mortem examinations, by carefully guarding the repositories of the others who died of this disease until long after decomposition had rendered an exhumation unprofitable.

Never having seen an account given of any autopsic appearances in fatal cases of this disease, it would have proved to me a source of peculiar gratification had I been permitted to have instituted examinations in the cases of the other members of this family who died. I feel an anxiety to know if these evidences of violent cerebral inflammation were the legitimate production of the disease, unconnected with the puerperal condition of this patient. I have never yet witnessed a case of this disease in which the brain and nervous system were not deeply, and often primarily affected, which condition alone enables me to account for the abortion in this case.

Treatment.—General bleeding is the first, and, according to my experience of all others, the most important remediate means. The extent to which it should properly be carried, can be regulated only by the pulse, and, so long as *it* will bear it, we should have no hesitation to continue the abstraction, being guided neither by the weight nor measure of the amount drawn. To insure its advantageous operation it must be practised early, as, after the lapse of a few days, it cannot be carried to any extent from the sinking induced. If it can be avoided, we should never at one time push it so far as to produce syncope, for reaction is always slow, often imperfect, and we have seen congestion occasionally result from a want of attention to this direction.

The pulse I have ever found to be the surest guide, but occasionally it will, in the very commencement, be found small, frequent and oppressed, and but slightly tense from the beginning. In such cases it is proper to open a vein, and, if the pulse rise whilst the blood flows, it should be continued.

Next in importance to general bloodletting, I would rank local abstractions by cups, applied over the epigastrium and region of the liver, but more particularly are they of service to the temples and back of the neck. In some recent cases terminating favourably, I have attributed the recovery mainly to the adoption of the latter means.

We should direct the head to be shaved in the beginning, cold applications being made and continued for some days. This, conjoined with the liberal abstraction of blood generally and locally from the head with cups, will be found the most certain means of allaying the excessive irritability of the stomach. Blisters may be applied early, and are found particularly serviceable over the liver, in which case they seem to have the effect to relieve the congestion of the organ, and hasten the resumption of the exercise of the suspended function. In the latter stages they are of much advantage applied to the top of the sternum, back of the neck or to the scalp itself, and their good effects are increased by dressing them with some irritating cerate, in order to maintain a discharge. In certain low forms of the secondary fever, they will assist the oppressed powers of life, when applied to the extremities, being careful to keep up a continued impression by their repetition.

Opium and its preparations, given with a view to relieve vomiting, instead of effecting the desired object, have a direct tendency to increase it, and at the same time greatly to aggravate the febrile and cerebral symptoms.

No remedy administered internally has ever yet been found to allay either the irritability of the stomach or that intense sense of suffering which accompanies it.

By some the object is said to have been attained by the administration of repeated doses of tartarized antimony in the quantity recommended to maintain a state of nausea without vomiting. I view the propriety of its administration as questionable, and if it be really true that it does relieve the vomiting, we would account for it by tracing the effect to its indirect action on the brain. No agent will, according to my observation and experience, prove of service to allay this condition of the stomach, unless its operation be directed towards the brain; and, hence, the next important indication to bloodletting, is the application of the remedies already spoken of to that organ. The coldness of the extremities is a troublesome symptom, and can be relieved temporarily by the application of dry frictions and stimulating liniments. The extremities will not regain a natural and equable temperature until the proper biliary secretion is fully established.

The irritability of the stomach being quelled so far as that it will retain medicines, we must push their use with all possible industry to relieve the existing obstinate constipation and likewise restore the suspended action of the liver. For this purpose resort is commonly made to calomel in large and repeated doses, and, at the same time, conjoin with it other purgatives of the most active class. I would condemn the freedom and frequency with which this mercurial has been administered, and suggest a reduction of the quantity to that not exceeding five grains every two or three hours, and entirely discard the use of irritating or drastic cathartics. A remedy that, in domestic use, has acquired a high reputation in the treatment of milk sickness is olive oil. I have found it to be more readily retained in the stomach than other cathartics, and, though not very speedy, is certain in its operation. Conjoined with, or preceded by, the administration of a small dose of calomel, I have in many instances found no other medicines of the class necessary.

Soon after the commencement of the use of cathartics, we should have recourse to stimulating enemata every few hours, as they frequently exert a powerful influence in hastening their operation. Even when we have succeeded in opening the bowels and establishing the flow of bile, the cure of the case is but half accomplished, and much danger yet exists of a fatal termination. The secondary fever will always follow, with a different degree of obstinacy, varying as much in duration as in the different types it assumes. Of course the treatment of this must be varied according to the symptoms which arise. Not even general directions can be given; there is

now no specific action, and the intelligent practitioner will treat the symptoms as they present themselves.

I have now brought to a close a hasty and imperfect sketch of a disease which must be viewed almost as an anomaly in medical science. Our knowledge of it is unfortunately so limited, that we know not where to class it. It deserves, and should receive, the attention of some one competent to the task of unveiling its mysteries and pointing out the means by which it may be disarmed of its malignity; and the author will feel fully repaid for his labour if it will, in the slightest degree, prove the means of directing more general attention to this hitherto much neglected disease.

ART. VI. *On the Vital Statistics of Boston.* By LEMUEL SHATTUCK, of Boston.

THE oldest book of records of births in Boston was commenced in 1639, and contains some of the marriages, births, and deaths of the previous years, as early as 1630, and of the subsequent years, as late as 1663. This book also contains the birthsin several towns in Middlesex county, previous to its organization in 1647, and of Suffolk county, then including the present county of Norfolk, until 1663. Another volume embracing the period from 1663 to 1689, appears to have been lost; but a volume containing the records of births only from the earliest entries until 1689, copied from the oldest book, and the one supposed to have been lost, is still preserved. The next volume of records of births extends from 1689 to 1744, the next from 1744 to 1819. The last comprises but few pages. The records appear to have been very irregularly and imperfectly kept after about 1750, and some whole years have recently occurred in which very few records of this kind were made. During the quarter ending Dec. 31, 1838, one birth only was recorded. In some instances the births of one year are placed together in alphabetical order, in others those of several years are placed together in the same manner.

The marriages prior to 1663, were recorded in the oldest book with the births and deaths. From that time to 1689, the records of marriages are lost. Since then they are contained in five volumes. The 1st extends from 1689 to 1720; the 2d from 1720 to 1751; the 3d from 1761 to 1807; the 4th from 1807 to 1828; and the 5th from 1828 to the present time, though not in consecutive, annual order. No records are preserved of the marriages from 1663 to 1689, or from 1751 to 1761, and it is believed that very many

occurred in nearly all the years which have not been recorded. Great carelessness and negligence prevails with some clergymen and magistrates in keeping the records, and in making the returns. The "intentions of marriage" are preserved in twelve volumes, extending from 1707 to the present time. Those from 1818 to 1823, are lost.

The records of *deaths* are made with the births and marriages prior to 1663. From that time until 1689 they are lost. From 1689 to 1719 they are preserved in a separate volume; and from that time till 1810 very few deaths are recorded, and such as are, appear in the volume with the births.

None of these volumes of records, either of births, marriages, or deaths, are provided with indexes; and a search for a fact concerning the personal history of an individual—the only object for which they are valuable—is attended with great labor, and is often fruitless even when the desired fact is recorded. The records are so imperfect, that no general results of any value in statistics, to determine the law of population, or of mortality, could be drawn from any abstract which we could make. It is much to be regretted that our system of registration is such, that we cannot present, in any period of our history, an accurate account of the number of births and marriages. We hope to see a system of registration soon adopted, which will supply all existing deficiencies.*

From 1701 to 1774, the keepers of the several burying-grounds made returns once a week of the number of deaths in Boston, specifying the whites and blacks separately, but not their ages. The number of baptisms was also returned by the several clergymen. Both were published in the newspapers from 1731 to 1774. From these returns an annual statement was compiled and published. We have collected these annual statements, and arranged them with that of the population, in a table, (*see Table I,*) which exhibits some important information in regard to the health and condition of the town during that period. These returns may be relied on with considerable confidence, as being very nearly correct. The population of Boston was estimated at the beginning of the last century to have been about 6,750, and the annual deaths to be 230—one in 29.3, or 3.4 per cent. The deaths from 1705 to 1714, inclusive, were 3,341, and from 1715 to 1724, 4,350, giving an annual average of about 1 in 24, or 4.09 per cent. I have estimated the population in the period from 1725 to 1734, according to two enumerations, one taken in 1722, the other in 1735. The census was taken in 1742, in 1752, and in 1765, which forms the basis of the estimation in the other periods mentioned. It will be perceived that

* The author of this article has obtained a knowledge of the different systems of registration of births, deaths, and marriages in use in Europe, and he has prepared one which seemed to him best adapted to the institutions of our own country. He has been solicited to bring it before the state legislatures for adoption.

Boston contained more population from 1740 to 1745, than at any other period before the revolution.

TABLE I, *showing the progress of the population in Boston, for the fifty years from* 1724 *to* 1774 *divided into periods of* 10 *years each.*

In regard to	1725–1734	1735–1744	1745–1754	1755–1764	1765–1774
Population.—White .	11900	14750	14190	14390	14672
Black .	1100	1250	1541	1241	848
Total .	13000	16000	15731	15631	15520
Average annual Baptisms	528	578	474	413	443
Population to 1 baptism .	24	28	33	38	35
Deaths to 100 baptisms .	77	82	123	107	104
Average annual Deaths.—					
Whites .	407	479	585	444	462
Blacks .	95	91	86	70	59
Both .	502	570	671	514	521
White population to 1 death	29	30	24	36	31
Deaths in 100 white population . . .	3.42	2.99	4.12	3.08	3.16
Black population to 1 death	12	14	18	18	14
Deaths in 100 black population . . .	8.63	7.28	5.58	5.64	6.95
Whole population to 1 death	26	28	23	34	30
Deaths to 100 whole population . . .	3.86	3.56	4.26	3.28	3.35
Baptisms to 100 deaths .	129	120	81	93	95

It was customary, at that early period, to baptize nearly all the infants, but toward the last part of the time, embraced in the table, the practice began to be neglected. The returns of baptisms should not, therefore, be taken as a complete return of the births. We made an attempt to obtain the number of marriages, but the records are so imperfect it was abandoned.

It will be perceived, by comparing this table with others directly to be presented, that the mortality in Boston was much higher then than at the present time. The lowest mortality was in 1755 to 1764, being 514—one in 34, or 3.24 per cent. of the population, annually; the highest was in 1745 to 1754, being 671—one in 23, or 4.26 per cent. This is just double the mortality, which prevailed in 1826 to 1835, being then only 2.13 per cent. The lowest mortality in any single year was 407, or 1 in 38, in 1763; the highest 909, or 1 in 14, in 1730, and 1009, or 1 in 15, in 1752.

The mortality of the black, was much greater than that of the white population. In the first period mentioned in the table, it was as low as at any time. One in 18, or 5.64 per cent. of the black population, died, showing a difference of 2.56 per cent., as compared with the mortality of the whites. The highest mortality among the blacks was in 1725 to 1734, being 1 in 12, or 8.64 per cent. These are very striking facts, but are accounted for, in some measure, by the prevalence of the small-pox and other epidemics, which often visited the town at that time, and which seem to have been peculiarly fatal to the black population.

The *Small-Pox* prevailed in Boston as an epidemic in 1649, 1666, 1678, 1690, and 1702. It is said to have been very fatal in 1678, but we have no particular account of the number of its victims. In 1702, 302 died of this disease, being about 44 per 1000 of the inhabitants. In 1721, the disease broke out with great violence; and 5759 persons (more than half the inhabitants,) had it the natural way, of whom 844, or 1 in 7 died. Inoculation was then, for the first time, introduced, but not without great opposition. Two hundred and forty-seven were inoculated, of whom 6, or 1 in 42 died. Mather, who wrote an account of the epidemic at that time, says that "Cats had a regular small-pox, and died of it;" and that "pigeons and dunghill fowls did not lay nor hatch" during the prevalence of the disorder! In 1730, it has been estimated that 4,000 cases occurred, of which about one-tenth were by inoculation. Of these about 500 died.

In 1752, the disease again appeared in Boston, and became very fatal. The town then contained 15,684 inhabitants; of these 5,908 were supposed to have had the disease. One thousand eight hundred and forty-three removed out of town. All the remainder, except 174, had the disease by inoculation, or the natural way. We have compiled the following statement, to illustrate the prevalence of the disease at this period:—

Persons.	Natural.			Inoculated.		
	Cases.	Deaths.	Ratio per 1000.	Cases.	Deaths.	Ratio per 1000.
Whites .	5060	470	92	1985	24	12
Black .	485	69	142	139	6	43
Both .	5545	539	97	2124	30	14

It appears from this statement, that the liability to death by this disease among the blacks, was about 50 per cent. greater than among the whites, when taken in the natural way; and more than three times as great, when taken by inoculation. The deaths took place in the different months of the year, as follows:—

Month.	Natural.		Inoculated.		Total.
	Whites.	Blacks.	Whites.	Blacks.	
January	1	—	—	—	1
February	2	—	—	—	2
March	2	—	—	—	2
April	20	1	20	6	47
May	205	39	4	—	248
June	203	20	—	—	223
July	31	8	—	—	39
August	5	1	—	—	6
September	1	—	—	—	1
Total	470	69	24	6	569

In the twenty days, beginning May 19, there were 220 deaths, averaging 10 per day. On the 1st June, 25 took place.

This disease occurred again in 1764, in 1776, in 1778, and in 1792. The following statement exhibits its ravages in the last named period. The town then contained about 18,000 inhabitants, of whom 10,655 were supposed to have had the disease, 262 removed out of town, and 221 only remained unaffected, liable to the disease. The rest had it. The cases by the natural way, and by inoculation, were as follow:—

Persons.	Natural.			Inoculated.		
	Cases.	Deaths.	Ratio per 1000.	Cases.	Deaths.	Ratio per 1000.
White	214	27	125	8804	157	17
Black	18	6	333	348	7	20
Both	232	33	141	9152	165	18

The following table exhibits a view of the disease at every period of its appearance in Boston, after 1720:—

Year.	Cases.	Deaths	Ratio per 1000 of the population.		Natural.			Inoculated.		
			Sick.	Died.	Cases	Deaths.	Ratio per 1000.	Cases.	Deaths.	Ratio per 1000.
1721	6006	850	546	77	5759	844	148	247	6	24
1730	4000	500	266	33	3600	488	135	400	12	30
1752	7669	569	489	36	5545	539	97	2124	30	17
1764	5646	170	364	11	669	124	185	4977	46	9
1776	5292	57	441	10	304	29	95	4988	18	5
1778	2243	61	166	4	122	42	344	2121	29	9
1792	8346	198	460	10	232	33	142	8114	165	18

Measles prevailed in 1713, 1729, 1759, and 1772, and was the cause of many deaths.

In 1745, an epidemic fever occurred of a very fatal character.

The *Scarlet fever* was first introduced into Boston in 1735, and during that and the next year was very prevalent. About 4000 persons were sick with it, of whom 1 in 35 died. At this time it spread generally through the New England towns, carrying off in some instances whole families. In Kingston, where the usual annual mortality was not above 9 or 10, it rose in 1735 to 102, and this great increase of mortality was not unusual in other places. It is somewhat singular, that after the lapse of just about a century, it should have prevailed again as one of the most fatal diseases of New England.

A new system of registration for the deaths only went into operation in Oct. 1810, and has since been continued with some slight modifications. These records are all preserved. At first the town was divided into three districts, the north, middle, and south, and a separate register kept for each,

under the direction of the Board of Health. The particulars recorded were, 1st, The date of death and burial; 2d, The age and sex; 3d, To what family belonging; 4th, The disease, or cause of death; 5th, The number or name of the tomb where interred, designating the burial ground, and whether a citizen or stranger; and, 6th, Remarks. The district system was given up in 1822, at the incorporation of the city, and the office of superintendent of burial grounds was created. This office has since been filled by Mr. Samuel H. Hewes, and he has kept the records of the deaths of the whole city. A "General Abstract of the Bill of Mortality" has been printed annually since 1811, specifying the number of deaths each month in the year, distinguishing the males from the females, and the ages under 1; 1 to 2; 2 to 5; 5 to 10; 10 to 20, and each decennial period afterwards to 100. These abstracts specify also the number of deaths by each disease, but not the age, sex, season, and other particulars, which ought to have been noticed. Heavy penalties were imposed for burying without permission; and it is presumed that all, or very nearly all, the deaths that have taken place in the city are recorded. And the "bills," as far as they go, contain a faithful abstract of the records, and may be generally relied on as correct.

TABLE II, *showing the distribution of the population of Boston according to age, sex, and colour, at seven different enumerations.*

Ages.	1765.				1790.			
	Males.	Females.	Differ'e.	Total.	Males.	Females.	Difference.	Total.
Under 16 . . .	4109	4010	+99	8119	3376			
16 and upwards	2941	3612	—671	6553	4325			
Whites . . .	7050	7622	—572	14672	7701	9576	—1875	17277
Coloured . . .	531	317	+14	848				761
Total . . .	7581	7939	—558	15520	7701	9576	—1875	18038
	1800.				1810.			
Under 10 . .	3057	3083	—26	6140	4391	4349	+42	8740
10 to 16 . . .	1406	1499	—93	2905	1860	2081	—221	3941
16 to 26 . . .	2478	2998	—520	5476	3578	3989	—411	7567
26 to 45 . . .	2999	3110	—111	6109	4165	4140	+25	8305
45 and upwards	1334	1799	—465	3133	1346	1887	—541	3233
Whites . . .	11274	12489	—1215	23763	15340	16446	—1106	31786
Coloured . . .				1174				1464
Total . . .	11274	12489	—1215	24937	15340	16446	—1106	33250
	1820.				1825.			
Under 10 . .	5283	5399	—116	10682	6206	6309	—103	12515
10 to 16 . . .	2416	2965	—549	5381	3061	3616	—555	6677
16 to 26 . . .	3564	4544	—980	8108	7622	7589	+33	15211
26 to 45 . . .	7345	5973	+1372	13318	8458	7739	+719	16197
45 and upwards	1500	2569	—1069	4069	2560	3204	—644	5764
Whites . . .	20108	21450	—1342	41558	27907	28453	—550	56364
Coloured . . .	809	931	—122	1740	974	943	+31	1917
Total . . .	20917	22381	1464	43298	28881	29396	—515	58281

1830.

Ages.	Males.	Females.	Diff'nce.	Total.	Proportion of females to 100 males.	Proportion each age.	Surviv'g.	Proportion surviving.	Proportion surviving each age that are in next age.
Under 5	3818	4004	—186	7822	104.87	13.14	59517	100.—	13.14
5 to 10	2941	2978	—37	5919	101.25	9.95	51695	86.86	11.44
10 to 20	5634	6391	—757	12025	113.43	20.20	45776	76.91	26.26
20 to 30	7729	7958	—229	15687	102.96	26.36	33751	56.71	46.47
30 to 40	4132	4661	—529	8793	112.80	14.78	18064	30.35	48.67
40 to 50	2168	2698	—530	4866	124.44	8.18	9271	15.57	52.48
50 to 60	1077	1413	—336	2490	131.19	4.18	4405	7.39	56.52
60 to 70	475	801	—326	1276	168.63	2.14	1915	3.21	66.63
70 to 80	164	325	—161	489	198.17	.82	639	1.07	76.52
80 to 90	31	105	—74	136	338.70	23	150	.25	90.66
90 to100	2	12	—10	14	600.00	2	14	.02	100.—
Whites	28171	31346	—3175	59517	111.26	100.00			
Colored	865	1.010	—145	1875	116.76				
Total	29036	32.356	—3320	61392	111.43				

Tables of an improved form might have been prepared from the existing records, but to render them as perfect as they ought to be, some modification in the system of keeping the records is necessary. We have compiled from the series of printed abstracts, now before us, several tables, containing important facts and deductions in relation to the vital statistics of Boston. Some others might have been presented had we gone back to the original records, but they would hardly have paid the great labour required for compilation. To render these tables more clearly understood, the condition of the population should be known. We have, therefore, compiled several tables from the different censuses, to illustrate this point.

We have already given an account of the population of Boston previous to 1775. Table II presents the particulars of the population according to the several different enumerations from 1765 to 1830. From this table we have compiled the following abstract, to exhibit the increase of the population:—

TABLE III, *showing the increase of the population at eight enumerations, from* 1790 *to* 1837.

Years.	Population.	Actual Increase.		Increase per cent.		One in	Square y'rds to each.
		Total.	Annual.	Total.	Annual.		
1790	18.038	——	——	——	——	—	201
1800	24.937	6899	689.9	38.24	3.82	26	145
1810	33.250	8313	831.3	33.33	3.33	30	109
1820	43.298	10048	1004.8	30.22	3.02	33	83
1825	58.281	14983	2996.6	34.60	6.92	14	64
1830	61.392	3111	622 2	5.33	1.06	94	62
1835	78.603	17211	3442.2	28.03	5.60	17	49
1837	80.325	1722	861.0	2.19	1.09	91	49

From this statement it appears that the greatest increase of the population was from 1820 to 1825, being 14,983, equal to an annual increase of 6.92

per cent., or 1 in 14. The least increase was in 1825 to 1830, being only 1.06 per cent. annually. The whole increase from 1790 to 1837, was 445.3 per cent., or doubling the first mentioned number about 4½ times.

In 1796, Boston, exclusive of South Boston, was estimated to contain 750 acres, or 3,630,000 square yards, including the streets. This may not have been strictly correct, but was an approximation to the truth; and probably the inhabited parts do not now contain more than that quantity of territory. This would give 201 square yards to each inhabitant in 1790, and 49 in 1837, being an increased density of 5 to 1.

TABLE IV, *showing the population living at each age of the different sexes.*

Age.	Proportion of Females to 100 Males				Proportion of population living at each age.			
	1800	1810	1820	1825	1800	1810	1820	1825
Under 10	100.85	99.04	102.19	101.65	25.84	27.50	25.74	22.20
10 to 16	106.61	111.88	122.72	111.59	12.23	12.40	12.97	11.84
16 to 26	120.98	111.48	127.49	99.56	23.04	23.80	19.51	26.99
26 to 45	103.70	99.39	81.32	91.49	25.71	26.13	31.99	28.74
45 and upwards	134.81	140.19	171.33	125.11	13.18	10.17	9.79	10.23
Total.	110.77	107.30	102.10	101.96	100.00	100.00	100.00	100.00

The proportion of living males to living females deserves consideration. There have been in Boston more females than males. The proportion of the aggregate number of each sex of all ages was in 1790, as 100 males to 104.72 females, and in 1800, as 100 to 110.77. The proportion, however, became more equal in 1825, when it was reduced, and was as 100 to 101.96. In 1830, it was as 100 to 111.43. These facts will appear from Table IV, which also shows the census of 1830, and the proportion of each sex living at the different ages. In 1810 there were less females than males living under 10 years. At all other periods under 26 years, excepting 1825, there were more females than males. In the ages 26 to 45, there were more males than females at each enumeration excepting 1800. Above 45 there were from 25 to 70 per cent. more females than males. The most striking difference was in 1820. The proportion of the sexes then changes in the ages 26 to 45; to the ages 45 and upwards, from 81.52 to 171.33 per cent., a difference of 90 per cent. This shows the changeable nature of our population. The ages of 24 to 45 embrace the transient inhabitants—persons in single life, who come here to reside a few years, and afterwards remove. The proportion of population living at all ages will also appear from this table.

In the census for 1830, we have exhibited the proportion of males to females, and the proportion of both, living at each age; the number surviving, and the proportion per cent. of the surviving at each age; and the proportion of the number surviving each age, that do not attain the next higher age. These deductions are important, as showing the laws of longevity.

The proportion of white to coloured population has been about the same at each of the enumerations, excepting the last two, when the whites had increased, as will appear from the following statement:

Proportion.	In 1790.	In 1800.	In 1810.	In 1820.	In 1825.	In 1830.
Of whites,	95.78	95.30	95.60	95.98	96.71	96.95
Of coloured,	4.22	4.70	4.40	4.02	3.29	3.05
	100.00	100.00	100.00	100.00	100.00	100.00

This shows that in 1790, of the whole population, 95.78 per cent. were white, and the remainder, 4.22, were coloured. In 1830, the proportion of whites had increased, and the coloured decreased, 1.17 per cent.

TABLE V, *showing the influences of the different years on the number of the deaths, distinguishing the males from the females, and the stillborn, and the proportion to the population.*

Years.	Population.	Deaths.						Proportion to population.	
		Males.	Females	Diff'nce.	Total.	Still born.	Total.	One in	Per cent
1811	34.255	373	375	—2	748	46	794	45	2 18
1812	35.260	286	347	—61	633	48	681	55	1.85
1813	36.264	416	334	+82	750	36	786	48	2.06
1814	37.269	367	328	+39	695	32	727	53	1.86
1815	38.274	407	433	—16	830	21	851	46	2.16
1816	39.279	440	433	+7	873	31	904	45	2.22
1817	40.284	453	422	+31	875	33	908	46	2.17
1818	41.288	486	439	+47	927	46	971	44	2.23
1819	42.293	423	366	+57	789	89	878	53	1.86
1820	43.298	505	509	—4	1014	89	1103	42	2.31
Mean.		415.6	397.6	+180	813.2	47.1	860.3	47	2.09
1821	46.295	678	643	+35	1321	99	1420	35	2.85
1822	49.291	570	518	+52	1088	115	1203	45	2.20
1823	52.288	531	514	+17	1045	109	1154	50	1.99
1824	55.284	623	585	+38	1208	89	1297	45	2.18
1825	58.281	692	670	+22	1362	88	1450	42	2.33
1826	58.903	623	544	+79	1167	87	1254	50	1.98
1827	59.525	495	444	+51	939	83	1022	63	1.57
1828	60.147	603	556	+47	1159	74	1233	51	1.92
1829	60.769	600	556	+44	1156	65	1221	52	1.90
1830	61.392	532	493	+39	1025	100	1125	59	1.66
Mean.		594.7	552 3	+424	1147.0	90.9	1237.9	49	2.05
1831	64.834	676	677	—1	1353	71	1424	47	2.08
1832	68.276	840	835	+5	1675	86	1761	40	2.45
1833	71.780	679	695	—16	1374	102	1476	52	1.91
1834	75.160	765	675	—10	1440	114	1554	52	1.91
1835	78.603	991	828	+163	1819	95	1914	43	2.31
1836	79.464	831	817	+14	1648	122	1770	48	2.07
1837	80.325	875	868	+7	1743	100	1843	46	2.16
1838	81.186	937	862	+75	1799	121	1920	45	2.21
1839	82.215	863	859	+241	1722	141	1863	44	2.23
Mean.		745.7	711.6	+241	1457.3	95.2	1552.5	45	2.14

The preceding table, (Table V,) being the first compiled from the printed bills of mortality, presents a general view of the number of deaths each year, from 1811 to 1839, distinguishing the males from the females. The still-born, having never lived, are excluded from the number of deaths in all correct bills of mortality, and are here placed in a separate column. The population at the different enumerations, and the estimated population for the intervening years, and the ratio which the deaths bear to the population, are given. The least mortality in one year was in 1827, being 939, one in 63, or 1.57 per cent., and the greatest in 1821, being 1,321, one in 35, or 2.85 per cent. The average annual deaths were 813, from 1811 to 1830—one in 47, or 2.09 per cent., 1147 from 1821 to 1830—one in 49, or 2.05 per cent., and 1,552 from 1831 to 1839—one in 46, or 2.14 per cent., showing a small increase in the force of mortality.

Mortality of different Ages.—The number of deaths varies very much in the different ages, being in some much greater than in others. We have presented in table VI the number who have died under 1, between 1 and 2, 2 and 5, 5 and 10, and at each subsequent decennial period of life. This has been done for the different sexes, and in the different periods of time—the 10 years, 1811 to 1820, and 1821 to 1830, and the 9 years, 1831 to 1839, that we might institute a comparison between the different periods, to ascertain whether the proportion of deaths was the same in each, and also for the whole 29 years. The greatest number of deaths in any one period mentioned, is under one year, in the period 1831 to 1839, being 2861. The next greatest is between 20 and 30 of the same period, being 1843. The least number is between 90 and 100.

TABLE VI, *showing the influences on the number of deaths in different ages, distinguishing the males from the females, in three different periods of time.*

Age.	1811—1820.			1821—1830.			1831—1839.			1811—1839.		
	Males	Females	Total.	Males	Females	Total.	Males	Fem'ls	Total.	Males	Fem'ls	Total.
Under 1	765	610	1375	1129	833	1962	1596	1265	2861	3490	2708	6198
1 to 2	435	397	832	580	640	1220	848	933	1781	1863	1970	3833
2 to 5	267	224	491	428	365	793	849	749	1598	1544	1338	2882
5 to 10	151	133	284	233	173	406	344	275	619	728	581	1309
10 to 20	194	236	430	234	299	533	272	463	735	700	998	1698
20 to 30	548	585	1133	671	733	1404	871	972	1843	2090	2290	4380
30 to 40	509	471	980	750	642	1392	913	738	1651	2172	1851	4023
40 to 50	497	374	871	623	466	1089	651	505	1156	1771	1345	3116
50 to 60	300	260	560	389	331	720	456	365	821	1145	956	2101
60 to 70	201	255	456	233	287	520	303	343	646	737	885	1622
70 to 80	160	226	386	181	248	429	198	298	496	539	772	1311
80 to 90	74	119	193	89	137	226	85	140	225	248	396	644
90 to 100	5	24	29	11	26	37	15	36	51	31	86	117
Sum	4106	3914	8020	5551	5180	10731	7401	7082	14483	17058	16176	33234
Unknown	50	62	112	396	343	737	56	34	90	502	439	941
Total	4156	3976	8132	5947	5523	11470	7457	7116	14573	17560	16615	34175

TABLE VII,

Showing, in three different periods of time, the number dying and the number surviving, and the proportion per cent. of each at the different ages; and also the proportion per cent. of those who survive the first mentioned age, that die before they attain the next age.

Age.	1811—1820.					1821—1830.					1831—1839.				
	Dying of the first and under the second mentioned age.		Surviving the first mentioned age.		Proportion per cent. of those who survive the first mentioned age who die before the next age.	Dying of the first and under the second mentioned age.		Surviving the first mentioned age.		Proportion per cent. of those who survive the first mentioned age who die before the next age.	Dying of the first and under the second mentioned age.		Surviving the first mentioned age.		Proportion per cent. of those who survive the first mentioned age who die before the next age.
	Whole number.	Proportion per cent.	Whole number	Proportion per cent.		Whole number.	Proportion per cent.	Whole number.	Proportion per cent.		Whole number.	Proportion per cent.	Whole number.	Proportion per cent.	
Under 5	2698	33.64	8020	100.00	33.64	3975	37.04	10731	100.00	37.04	6240	43.09	14483	100.00	43.09
5 to 10	284	3.54	5322	66.36	5.33	406	3.79	6756	62.96	6.00	619	4.27	8243	56.91	7.60
10 to 20	430	5.36	5038	62.82	8.53	533	4.97	6350	59.17	8.39	735	5.08	7624	52.64	9.64
20 to 30	1133	14.13	4608	57.46	24.58	1404	13.08	5817	54.20	24.13	1843	12.73	6889	47.56	26.75
30 to 40	980	12.22	3475	43.33	28.20	1392	12.97	4413	41.12	33.85	1651	11.40	5046	34.83	32.73
40 to 50	871	10.86	2495	31.11	34.90	1089	10.15	3021	28.15	36.04	1156	7.98	3395	23.43	34.05
50 to 60	560	6.99	1624	20.25	34.48	720	6.71	1932	18.00	37.31	821	5.67	2239	15.45	36.66
60 to 70	456	5.68	1064	13.26	42.85	520	4.84	1212	11.29	42.90	646	4.46	1418	9.78	45.55
70 to 80	386	4.81	608	7.58	63.48	429	4.00	692	6.45	61.99	496	3 42	772	5.32	64.24
80 to 90	193	2.41	222	2.77	86.98	229	2.17	263	2.45	85.93	225	1.55	276	1.90	81.22
90 to 100	29	.36	29	36	100.00	37	.34	37	.34	100.00	51	.35	51	.35	100.00
	8020	100.00				10731	100.00				14483	100.00			

In table VII we have given the aggregate number of deaths, and calculated the proportion per cent. of the deaths at each specified interval of age. It appears that 2698, or 33.64 per cent., of the whole deaths in 1811 to 1820 were under 5 years of age, and that 14.13 per cent., the next greatest proportion, was between the ages of 20 and 30. In the next column of this table we have presented the number who survive each specified age, and in the fourth column the proportion per cent. of the surviving. It appears from this table that 5322, or 66.36 per cent., of the deaths in 1811 to 1820 survived the age of 5 years; 1624, or 20.25 per cent., survived the age of 50 years; and 222, or 2.77 per cent., survived the age of 80 years. In the fifth column we have presented the law of mortality calculated from the deaths alone, and given the proportion per cent. of the number of those who were alive at the beginning of each specified age, and who died before the next specified age. Of the whole deaths, 33.64 per cent. were under 5 years; of those who survived 5 years, 5.33 per cent. died before they attained 10 years; of those who survived 10 years, 8.53 per cent. died before they attained 20 years; and so on for each successive period, as appears in the table. We have presented these four different kinds of facts concerning the other periods, 1821 to 1830, and 1831 to 1839. A comparison of these facts presents some very important considerations.

It has been repeatedly said that the great improvements in the science of medicine—in the nature and treatment of disease, and other causes, have increased the average longevity of mankind; that life is more valuable now than it formerly was; and that these improvements are constantly going on. The value of life is estimated by the number of years we live. A long life is more valuable than a short one. It is said to be improved in value, when the various circumstances, which surround us, add to the number of years of existence, as compared with other causes, which have existed in other places or periods of time. No correct conclusion can be made in regard to such comparison, except by a careful examination of the facts. A sufficient number of these is not, however, as yet attainable in this country to enable us to investigate the subject so fully and satisfactorily as could be desired. We can present some important ones in relation to Boston.

By table I we are enabled to compare the ratio of mortality in Boston to the population, during a portion of the last century, with that prevailing at the present time, after an interval of nearly 100 years. There was then 1 death to about 30 or 35, or 3 per cent., of the population. Now according to table IV there is 1 in about 45, or 2.10 per cent., of the population. This shows a very great improvement in the relative value of life. A comparison of other facts in the two tables will also present some very striking consisiderations. In consequence of the ages of the deaths not being then given, we are unable to estimate the comparative value of life at the different ages.

To estimate accurately the value of life in any place, two important elements are necessary to be known: first, the number of the living at each age,

and, secondly, the number of deaths at the same age. That we might make a calculation approximating to the truth in regard to Boston, we have taken the population of 1830, according to table II, and have distributed the 1875 blacks among the whites of the different ages according to their respective proportions. From the bills of mortality we have ascertained the number of deaths for the 10 years, 1826 to 1835, five years before and five years after the census was taken, and have distributed the whole, including 126 deaths whose ages were unknown, in the same manner in regard to age as the living. One-tenth of these is the annual average, and consequently the number of deaths for 1830. By dividing one by the other, the annual proportion of the deaths to the living at each age will appear, as in the following statement. We have added the results of a similar calculation made by Mr. Milne, in his valuable treatise on life insurance, respecting the value of life in Carlisle, in England, which is there considered a favourable specimen of healthy life.

Statement showing the population of Boston for 1830, *the deaths for* 10 *years*, 1826 *to* 1835, *and the proportion of the annual deaths to* 100 *constantly living in Boston and Carlisle.*

Age.	Population in 1830.	Deaths 1826–1835.	Centesimal proportion of deaths to the living.		
			In Boston.	In Carlisle.	Difference.
Under 5	7822	5176	6.48	8.22	—1.74
5 to 10	5919	515	.85	1.02	—.17
10 to 20	12025	659	.54	.58	—.04
20 to 30	15687	1719	1.07	.75	+.32
30 to 40	8793	1656	1.84	1.05	+.79
40 to 50	4866	1130	2.27	1.43	+.84
50 to 60	2490	775	3.05	1.82	+1.23
60 to 70	1276	607	4.63	4.12	+.51
70 to 80	489	465	9.12	8.29	+.83
80 to 90	136	235	16.94	17.56	—.52
90 to 100	14	44	30.76	28.44	+2.32
	59517 Blk's1875	12981 Unk'n 126	Mean2.13	2.50	
Total	61392	13107			

By this statement it appears that the proportion of deaths to the living is greater in Carlisle than in Boston under the age of 20, and between the ages of 80 and 90. At the other ages it is greater in Boston. Between the ages of 50 and 60, and 90 and 100, there is the greatest difference, being in the former 1.23, and in the latter 2.32. The mean of all ages is 2.13 per cent. in Boston and 2.50 per cent. in Carlisle, showing a difference of .37 in favour of the former. This presents the law of mortality in Boston, as accurately as it could be done from any data at present existing. It is, however, difficult, if not impossible, to determine it with perfect precision by any general statement concerning a population so changeable as that of our city.

We have arranged the tables including the deaths from 1811 to 1839 in such form, that we can institute a comparison between the relative mortality

of the different periods, 1811 to 1820, 1821 to 1830, and 1831 to 1839. This comparison presents some very striking facts, and shows that, although the average value of life is greater now than during the last century, it is not so great as it was twenty years ago; that it was at its maximum in 1811 to 1820, and that it has since somewhat decreased. It appears that 33.64 per cent. of the deaths in 1811 to 1820 were under 5 years of age, 37.04 per cent. in 1821 to 1830, and that 43.09 per cent. in 1831 to 1839, showing a gradual increase of the relative mortality under that age, and between the first and the last given period, a difference of 9.45 per cent. or a proportional increase of mortality of 28 per cent.!

It is a melancholy fact, and one which should arrest the attention of all, that 43 per cent. or nearly half of all the deaths which have taken place in Boston during the last nine years, are of persons under 5 years of age; and the proportional mortality of this age has been increasing. A comparison may be made between other ages by table VII in two ways, one by taking the difference between the proportions per cent. of the dying each age in the different periods, or by subtracting the second columns of each period from each other; and the other by taking the difference between the proportion per cent. of those who survive the first mentioned age, and die before they attain the next age, or by subtracting the fifth columns of each period from each other. The first method is not so correct as the second; for, if a greater proportion die under 5 years of age, there must of course be a less proportion die at each of the other ages, even if the number proportional to the living at that age be the same. It is not so in regard to the other method. The mortality of one age is not dependent on any other, and the table shows the proportion of the whole number of deaths, who attain the age of 5, 10, 20, or any other given period, who die before they attain the next given period. This calculation shows the law of mortality for a place as accurately as can be shown from any calculation from records of deaths alone. We have given below the difference between the proportion per cent. of the deaths at each period. The sign plus shows that the mortality is greater, and minus that it was less in the last period than the first.

AGE	Difference between 1811 to 1820 and 1821 to 1830.		Difference between 1821 to 1830 and 1831 to 1839.		Difference between 1811 to 1820 and 1831 to 1839.	
	2d column.	*5th column.*	*2d column.*	*5th column.*	*2d column.*	*5th column.*
Under 5	+3.40	+3.40	+6.05	+60.5	+9.45	+9.45
5 to 20	+.25	+.67	+.48	+1.50	+.73	+2.17
10 to 20	—.39	—.14	+.11	+1.25	—.28	+1.11
20 to 30	—1.05	—.45	—.35	+2.62	—1.40	+2.17
30 to 40	+.75	+5.65	—1.57	—1.12	—.82	+4.53
40 to 50	—.71	+1.14	—2.17	—1.99	—2.88	—.85
50 to 60	—.28	+2.83	—1.04	—.65	—1.32	+2.18
60 to 70	—.84	+.05	—.38	+2.65	—1.22	+2.70
70 to 80	—.81	—1.49	—.58	+2.25	—1.39	+.76
80 to 90	—.24	—1.05	—.62	—4.71	—.86	—5.76
90 to 100	—.02		+.01		—.01	

It appears from this table that the value of life has slightly improved between the ages 30 and 60 and over 80, the chances being somewhat greater than they were twenty years ago, that a person of these ages will live to the next higher age. Under 30 the mortality has increased; the greatest however is under 5. The mortality for 1838 was greater than in any any other year, being 47.65 wanting but 2.35 per cent. of half the whole deaths, showing in that year a greater mortality under 5, than the average eight previous years, of 4.68 per cent., and that of the first ten years of 14.51 per cent.

The causes of this increasing and alarming mortality should be investigated, and, if possible, removed. We have endeavoured to ascertain some of these causes. Allowance should, we suppose, be made for the customs of the times. More luxury and effeminacy in both sexes prevail now than formerly; and this may have had some influence in producing constitutional debility, and the consequent feeble health of children. The nursing and feeding of children with improper food is another cause. The influence of bad air in confined, badly located, and filthy houses, is another and perhaps the greatest. Epidemic diseases which are particularly prevalent among children have increased. It will hereafter be shown that scarlet fever has prevailed very much the last nine years, and has increased the mortality. In the period 1811 to 1820, this disease produced 13 per 1000 of the whole deaths. In 1831 to 1838, it produced 489. Other infantile diseases have also increased. These considerations would, perhaps, sufficiently account for the increased mortality under 5 years of age.

We had supposed that a greater mortality prevailed in certain localities, and in certain classes of our population than in others, and we have endeavoured to ascertain how far the supposition is founded on fact. Though the records do not specify, as they ought, the place of residence of those whose deaths are recorded, they do give, in all cases, the places of burial. We have compiled the following statement from a list of all those, who were buried from Boston in the South Boston and Charleston Roman Catholic burial grounds.

Of the 1987 Catholic burials during the six years, 1833 to 1838, comprising 1028 males and 958 females, 61.39 per cent. were under 5 years. The still-born during the same time, and in the same religious denomination, not included in the above, were 125, or 5.77 per cent. of the whole burials; 112, or about 5½ per cent. only, lived to see 50 years of age, and 30, or less than 2 per cent. lived to 70. During the year 1838 there were 439 burials, of whom 303, or 171 males and 132 females, were under 5; and 136, or 57 males and 79 females, were over 5. This is a mortality of 75 per cent. of the whole male deaths, and 60 per cent. of the whole female deaths under 5; leaving 25 per cent. only of the males and 40 per cent. of the females, or 31 per cent. of both sexes, to survive that early age. This shows a great increase in mortality, and will account for the increase of the deaths under 5 years of age. The influx of unacclimated foreign emigrants, and the great number of

families crowded into the houses in Broad street, Ann street, and other densely populated parts of the city, render the air very impure, and expose the lives of infants, who are compelled to breathe it, to almost inevitable death. The influences of such circumstances are not confined to the places where they exist, but are extended to the population in the neighbourhood, and epidemics are generated, which are no doubt injurious to the general health of the city.

Mortality of different Sexes.—The difference in the mortality of the two sexes is given in tables V and VI, from which it appears that there were 180 more female than male deaths in 1811 to 1820; 424 in 1821 to 1830, and 341 in 1831 to 1839. There were four years in the first period, and three in the last only, when there were more male than female deaths. The proportion of the different sexes will appear from the following statement.

		Deaths.	Average.	Proportion.	
1811 to 1820	Males	4156	415	51.11	as 100 or 104.59
	Females	3976	397	48.89	to 95.66 100.
	Total,	8132	813	100.00	
1821 to 1830	Males	5947	594	51.85	as 100 or 107.67
	Females	5523	553	48.15	to 92.87 100
	Total,	11470	1147	100.00	
1839 to 1839	Males	7457	828	51.17	as 100 or 104.79
	Females	7116	790	48.83	to 95.42 100
	Total,	14573	1618	100.00	

The proportion of male and female deaths to the population in the years when the census was taken, was as follows:

	One in		Excess.	Proportion per cent.		Excess.
1820	Males 41	Females 44	3	Males 2.41	Females 2.27	14
1825	" 41	" 43	2	" 2.32	" 2.27	5
1830	" 54	" 65	11	" 1.83	" 1.52	31
1835	" 39	" 48	9	" 2.54	" 2.07	47

This statement shows that the agents of death are uniformly more active with male than female life.

In the following table we have given the number of deaths of each sex for the different intervals of age, as in table V, and the proportion of each sex for the period 1811 to 1838.

Age.	Observed.		Calculated.	
	Males.	Females.	Males.	Females.
Under 1	3315	2572	56.31	43.69
1 to 2	1756	1861	48.54	51.46
2 to 5	1426	1232	53.65	46.35
5 to 10	675	537	55.69	44.31
10 to 20	669	942	41.34	58.66
20 to 30	2009	2159	48.20	51.80
30 to 40	2071	1775	53.84	46.16
40 to 50	1693	1278	56.99	43.01
50 to 60	1099	915	54.56	45.44
60 to 70	700	849	45.19	54.81
70 to 80	521	741	41.28	58.72
80 to 90	241	376	39.06	60.94
90 to 100	31	83	27.18	72.82

It appears from this statement, that at the ages under 10 years, and between 30 and 60, more males than females die, the proportion rising in 40 to 50, as 56.99 to 43.01 per cent. At the other periods specified there are less male than female deaths; the difference after the age of 60 continually increasing, until 90 to 100, when it was as 27.18 to 72.82 per cent. By table II it appears that there were a greater number of males than females at any age among the living population. A comparison of these with the deaths will show that at certain ages a greater proportional mortality prevails among males, and at other ages among females.

Mortality of the Different Seasons of the Year.—In table VIII we have arranged the deaths in each period according to the months in which they occurred, distinguishing the males from the females, and placing before the numbers the sign minus, when it was less, and the sign plus, when it was greater than the mean. In the third column we have given the proportion, which the total of each month bears to 12000, or 1000 per month, and in the fourth column, the number, indicating the order of the month in regard to mortality—the highest being numbered 1. It appears from this statement, that the months of August, September, and October, have the highest mortality. December is number 4 in each period; November 5 in the last, and 6 in the others. June has uniformly the least mortality. If the proportions are arranged according to the seasons of the year, they will be as follows:

	1811–1820.	1821–1830.	1831–1839.
Winter,	2.801	2.775	3.000
Spring,	2.842	2.825	2.622
Summer,	2.807	2.996	2.800
Autumn,	3.550	4.434	4.578
	12,000	12,000	12,000

TABLE VIII,

Showing the influences of the different months of the year on the number of deaths, distinguishing the males from the females, and the stillborn, and the proportion each month, at three different periods of time.

Month.		1811—1820.					1821—1830.					1831—1839.					Stillborn. 1811—1839.	
No	Name.	Males.	Females.	Total.	Proporti'n.	Order.	Males.	Females.	Total.	Proport'n.	Order.	Males.	Females.	Total.	Proport'n.	Order.	Number.	Proporti'n
1	January	—309	—337	—622	0.918	8	+449	+477	—926	0.969	7	—591	+582	—1173	0.961	6	191	8.40
2	February	—322	—283	—589	0.869	10	—392	—390	—782	0.818	11	—539	—549	—1088	0.876	9	176	7.62
3	March	+367	+341	—676	0.997	5	—478	—413	—891	0.932	10	—556	—575	—1131	0.907	7	207	9.08
4	April	—327	—311	—622	0.918	9	—481	—426	—907	0.949	8	—563	—534	—1097	0.905	8	180	7.48
5	May	—333	—308	—628	0.927	7	—491	—411	—902	0 944	9	—488	—494	—982	0.810	11	185	7.76
6	June	—303	—254	—538	0 794	12	—423	—341	—764	0.799	12	—498	—458	—956	0.786	12	180	7.67
7	July	+354	—256	—582	0.859	11	+501	—440	—941	0.984	5	—590	—502	—1042	0.847	10	192	8.17
8	August	+416	+392	+782	1.154	3	+576	+555	+1131	1.183	2	+739	+678	+1417	1.167	3	217	9.45
9	September	+436	+405	+826	1.219	2	+661	+585	+1246	1.304	1	+799	+749	+1548	1.283	1	201	8.76
10	October	+461	+466	+906	1.337	1	+565	+544	+1109	1.160	3	+726	+698	+1424	1.174	2	208	8.58
11	November	+357	—333	+674	0.994	6	—457	+470	—927	0.970	6	+689	+644	+1333	1.121	5	191	8.31
12	December	—344	+364	+687	1.014	4	—473	+471	—944	0.988	4	+729	+653	+1382	1.163	4	204	8.72
	Total	4329	4050	8132	12.000		5947	5523	11470	12.000		7457	7116	14573	12.000		2332	100.—
	Mean	$352\frac{5}{12}$	$337\frac{1}{2}$	$677\frac{2}{3}$			$495\frac{7}{12}$	$460\frac{1}{4}$	$955\frac{5}{6}$			$621\frac{5}{12}$	593	$1214\frac{5}{12}$			$194\frac{4}{12}$	

In table IX, we have endeavoured to arrange the facts for one period, 1821–1830, to ascertain what influence the seasons have upon the mortality of different ages. We have given the whole deaths during the time, the mean or average of each month at each age, and the difference from this mean, placing the sign minus, when the mortality of the month at any age was less, and plus when it was greater, than this mean.

TABLE IX, *showing the influence of the different months of the year on the number of deaths, in the different ages, for the years* 1821—1830, *inclusive.*

Age.	Whole deaths.	Average or monthly mean.	January.		February.		March.		April.		May.	
			Deaths.	Diff'ce from mean.	Deaths	Diff'ce from mean.	Deaths.	Diff'ce from mean.	Deaths.	Diff'ce from mean.	Deaths.	Diff'ce from mean.
Under 1	1962	163.50	151	−12.60	121	−42.50	140	−23.50	140	−23.50	123	−40.50
1 to 2	1220	101.67	68	−33.67	46	−55.67	65	−36.67	80	−21.67	73	−28.67
2 to 5	793	66.08	64	−2.08	47	−19.08	65	−1.08	62	−4.08	69	+2.92
5 to 10	406	33.83	33	−.83	21	−12.83	23	−10.83	41	−7.17	29	−4.83
10 to 20	533	44.42	46	+1.58	40	−4.42	40	−4.42	31	−13.42	52	+7.58
20 to 30	1404	117.—	114	−3.—	106	−11.—	114	−3.—	123	+6.—	122	+5.
30 to 40	1392	116.—	112	−4.—	98	−18.—	126	+10 —	123	+7.—	123	+7.—
40 to 50	1089	90.75	88	−2.75	88	−2.75	93	+2.25	89	−1.75	105	−14.25
50 to 60	720	60.—	76	+16.—	51	−9.—	58	−2.—	54	−6.—	65	+5.—
60 to 70	520	43.34	42	−1.34	49	+5.66	51	+7.66	53	+9.66	35	−8.34
70 to 80	429	35.75	36	+.25	50	+14.25	38	−2.25	33	−2.75	35	−.75
80 to 90	226	18.83	31	+12.17	23	+4.17	18	−.83	22	+3.17	13	−5.83
90 to100	37	3.08	8	+4.92	3	−.08	3	−.08	1	−2.08	3	−.08
Total	10731	894.25	869	−25.25	743	−151.25	834	−60.25	852	−42.25	847	−47.25

Age.	June.		July.		August.		September.		October.		November.		December.	
Under 1	115	−48.5	158	−5.50	241	+77.50	293	+130.50	193	+28.50	145	−18.50	144	−19.50
1 to 2	64	−37.65	102	+.33	170	+68.33	224	+122.33	157	+55.33	101	−.67	70	−31.67
2 to 5	71	+4.92	47	−19.08	72	+5.92	78	+11.92	77	+10.92	70	+3.92	72	+5.92
5 to 10	42	+8.17	25	−8.83	46	+12.17	39	+5.17	36	+2.17	34	+.17	37	+3.17
10 to 20	40	−4.42	49	+4.58	42	−2.42	55	+10.58	47	+2.58	46	+1.58	45	+.58
20 to 30	75	−42.—	122	+5.—	129	+12.—	125	+8.—	149	+32.—	100	−17.—	125	+8.
30 to 40	101	−15.—	139	+23.—	100	−16.—	125	+9.—	124	+8.	124	+8.—	97	−19.—
40 to 50	60	−30.75	101	+10.25	89	−1.75	95	+4.25	103	+12.25	94	+3.25	83	−7.75
50 to 60	60	−0 —	58	−2 —	55	−5.	53	−7.	54	−6 —	56	−4 —	80	+20
60 to 70	32	−11.34	38	−5.34	48	+4.66	41	−2.34	51	+7.66	38	−5.34	42	−1.34
70 to 80	29	−6.75	29	−6.75	33	−2.75	26	−9.75	28	−7.75	50	+14.25	42	+6.25
80 to 90	13	−5.83	10	−8.83	23	+4.17	13	−5.83	18	−.83	20	+1.17	22	+3.17
90 to100	0	−3.08	5	+1.92	0	−3.08	0	−3.08	4	+.92	3	−.08	7	+3.92
Total	702	−192.08	883	−11.25	1048	+153.75	1167	+272.75	1040	+145.75	881	−13.25	866	−28.25

From this table the following abstract in relation to the seasons has been compiled.

	Under 20 years.	20 to 60.	60 and upwards.
Spring,	— 205.50	+ 43.75	+ 3.
Summer,	+ 56.50	— 62.75	— 49
Autumn,	+ 366.50	+ 70.75	+ 10
Winter,	— 222.50	— 35.75	+ 52

From this statement it appears that the seasons have the greatest influence on the mortality of persons under the age of 20 and over that of 60—the summer and autumn being most fatal with the former, and winter with the latter. This is the only general law we can deduce from the tables. If we examine and compare particular months and ages a striking difference will appear in the mortality, but not enough to deduce any general law from it.

The Stillborn.—The number and proportion of the stillborn burials will appear from the following statement:

	1811–1820		1821–1830		1831–1839	
	Number.	Proportion.	Number.	Proportion.	Number.	Proportion.
Deaths,	8,132	= 95.52	11,470	= 92.66	14,573	= 93.87
Stillborn,	471	= 5.48	909	= 7.34	952	= 6.13
Total burials,	8,603	100.00	12,379	100.00	15,525	100.00

The proportion of the stillborn to the whole burials was 1.82 per cent. in the second, and .65 per cent. in the third period, more than in the first. By table VIII it appears that the month producing the highest proportion was August, and that March was the next highest. There appears, however, to be less variation, in regard to the seasons, in these than in the other deaths.

Diseases.—In compiling an abstract of the diseases, or causes of death, we have confined ourselves to the printed bills of mortality, as we have done in preparing the other tables, and have not gone back to the original records. If this had been done, nothing of great importance, in addition, would have been obtained, unless an entire new set of tables had been formed, which should distinguish each case with respect to age and sex. The records in this respect are not full, and probably they are not always correct in regard to the cause of death inserted. The bills, however, contain the amount of all the deaths in the city, and it is presumed that they also contain a faithful abstract of the records concerning the diseases. There has been considerable difficulty, and great care and labour has been expended, in arranging the diseases from the different annual bills themselves. The nomenclature has been several times altered, and a disease is often returned one year under a name differing from that of the same disease contained in the return of another year, and even in the same year, one and the same disease often appears under two synonymous names, sometimes under the popular, and sometimes under the scientific name, or under both popular names.

Another feature of the bills is the indefinite idea conveyed by the names often given to the diseases. It appears from table XI, that of the whole deaths 111.6, 167.1, and 85.8 per 1000, in the respective period, were returned as occurring from unknown causes, and that 267.6, 160.5, and 158.4, per 1000, from diseases whose seat or character was undetermined. These two classes amount on the average to about one-third of the whole deaths. There are also many cases returned under the name of "Rupture," "Debility," "Tumour," "Infantile Diseases," "Complication of Disorders," &c.; and another class under the general name of "Complaint," "Disease of the Heart," or "Disease of the Lungs," &c., without specifying the particular kind or type of the disease. This is a great defect in our records and tables; and it should arrest the attention of the medical profession, whose reputation with that of the city, is in some respects involved in it. These imperfections in bills of mortality, however, are not peculiar to Boston. The same defect, to a greater or less extent, has existed in those published in other places in this country, and until recently in Great Britain. It is to be attributed to the imperfections of our system of registration, to the

ignorance, carelessness, or entire neglect, of those whose duty it is to make the returns, and to the want of proper forms and classification of our printed tables.

In 1836 a nomenclature, revised and considerably improved, was printed by the city; but it is believed that some further modification is necessary to make it as perfect as it should be. Some names might be omitted, and others substituted, and the whole arranged in two forms, one in alphabetical and numerical order, the other classed in groups according to the seat of, or parts affected by, the disease. In this way the nomenclature might be rendered more simple and exact; and when made, a form of a return should be prepared and every person concerned should not be requested merely, but required to conform to it in all respects to the extent of his power; and no burial should be permitted until the return is first obtained. In 1836 a circular was addressed by the city authorities to the members of the medical profession, and to the funeral undertakers, requesting them to conform to the new nomenclature, but from the fault of one party or the other, the returns relative to the *cause of death* are still defective.

From these remarks some of the difficulties, which have presented themselves in preparing the following tables, will be perceived. The tables will, however, imperfect as they are, convey much important information, and suggest how much more valuable tables of this kind would have been, if the original returns, from which they were compiled, had been made full and uniformly correct; and the annual printed abstracts themselves prepared in a different form, and on the principles of accurate classification.

It has been considered sufficient by many writers on this subject to prepare the tables, so as to exhibit the number of the deaths by each disease for certain definite periods of time given. But this information appears to fall short of the result which ought to be presented in such tables. To render them useful, a comparison should be made between the number of deaths by each disease, and the whole number of deaths in a certain given period, and this result should be again compared with a similar result concerning other periods. In this way the prevalence of any particular disease compared with that of other diseases at the same period, and with same diseases at different periods, may be at once seen, and a judgment formed from the per centage what proportion of deaths that particular disease occasions, and whether it be on the increase or decrease. The sex, age, and place of nativity of the diseased, and the season of the year in which the deaths occurred, are not stated in connection with the diseases in our printed tables, but they should be. The fatality of disease depends much on the age of the patients, and it is not the same in childhood, manhood, and old age, nor with the different sexes, and in the different months of the year. It is very important to know all such facts in relation to each disease, and the danger that man has to encounter in all ages, and under all circumstances. It would also be important, if practicable, to know the number of deaths by each disease in

proportion to the population, distinguishing them according to their ages. When facts like these are known they will lead to inquiries into the causes, which have produced an increase or diminution of disease, under different circumstances, and lead to the adoption of the proper remedies.

The following tables have been arranged on the basis of the nomenclature contained in the valuable Report of the Registrar-General of Births, Deaths, and Marriages in England, with such alterations as seemed necessary to render them more simple, and better adapted to our circumstances. Causes of death of a similar character, though entered under different names in different years, have been classed together, so as to show, as far as practicable, the prevalence of the same disease during the whole period. Table X contains the number of deaths by each disease in every year from 1811 to 1839 inclusive. They are divided into three periods, the first from 1811 to 1820, the second from 1820 to 1830, and the third from 1830 to 1839 inclusive, and the amount of each given in a separate column. By comparing these numbers together the relative mortality produced by each different disease, and whether it increases or diminishes, may be seen. It is necessary, however, to bear in mind that a greater number does not always indicate an increase of mortality. The increase of the population, and consequent relative increased number of deaths, must always be taken into view. The deaths, exclusive of the stillborn, from October 1810 to 1820, were 8,469, and from 1821 to 1830 they were 11,470, being an increase of 3001, or nearly 3.54 per cent. annually. During the nine last years, from 1831 to 1839, the deaths were 14,573, being an increase of 3,103, or 3. per cent. annually. This shows a little increase in the force of mortality as compared with the increase of population, as has already been shown. Table XI shows the comparison in regard to the several classes of diseases.

First Division.—*Endemic, Epidemic, and Contagious Diseases.*—This class of diseases is the great index to the state of health of a people, and determines more than any other its character in different locations, and in different periods. We have subdivided this class into *fevers, eruptive fevers*, and others *not classified.* (See table X.)

Fevers.—A variety of opinions prevails in regard to the nomenclature and arrangement of the different kinds of fevers. We have adopted, as far as circumstances will permit, the division contained in the American edition of Marshall Hall's Practical Medicine, though it does not agree with the Reports of the Registrar-General of Births and Deaths in England, nor with the Supplement to the Encyclopedia of Practical Medicine. There are many cases, found in the Boston tables, returned as "fever" only, without any specification of kind or type. A great variety of names is also given, some of which have been regarded as synonymous. Under *Synochus* are included all of a mixed character, or not clearly defined, which appear in the printed tables, such as "fever," "anomalous fever," "bilious," "catarrhal," "country," "isolated," "miliary," "acute synochus," &c. The term "typhoid" does not

appear in the bills until 1837, and is therefore omitted. Under *Typhus* are included such as "brain," "congestive," "continued," "inflammatory," "jail," "malignant," "nervous," "putrid," "typhoid," &c. We have arranged cases, which appeared in the printed tables as "lung fever," and "pleurisy fever," under *Pneumonia*, or inflammation of the lungs; "worm fever," under *Worms;* "rheumatic fever," under *Rheumatism;* "scarlet fever," under *Scarlatina;* "puerperal" and "child-bed fever," under *Diseases of Child-bed.* The deaths by fevers of all kinds were 749, 604, and 721, or 88.4, 52.7, and 49.5 per 1000 of the whole deaths in the respective periods, showing a decrease of 35.7 in the second, and 3.2 in the third. By looking at the different fevers in the tables it will be perceived, that typhus has produced the greatest number of deaths, but still it has very much decreased; being 623, 458, and 611, or 73.5, 39.9 and 41.9 per 1000, showing the last eight years a small increase on the previous 10, but not more than half the proportion of the period 1811 to 1820. The greatest number in one year was 119, in 1818. Ten cases of yellow fever occurred in 1816.

2. *Eruptive Fevers.*—The diseases of this class occur very irregularly. They have, however, increased. There occurred 64, 402, and 1402, or 7.5, 35.1, and 96.2 per 1000 in the respective periods, the last period showing more than 13 times the mortality of the first. Each of the diseases excepting *thrush*, shows an increased mortality. *Erysipelas* has increased from 1, in the first, to 65 in the last period. *Measles* was very fatal in 1821, 1825, 1829, 1832, and particularly in 1835, when 188 died of this disease: 28, 332, and 340, or 3.3, 28.9, and 23.1 per 1000 of the whole deaths occurred from this disease in the respective periods. Under *Scarlatina* are included the cases in the bills entered as "scarlet fever," "putrid sore throat," "cynanche maligna," "ulcerated sore throat," "throat distemper," "canker rash," &c., being considered nearly synonymous. Cases of this kind have increased since 1821 to 1830, from 13 to 489! It has become one of the most fatal of the eruptive fevers. The suddenness of its attack, the irregular mode of its operation, and its generally fatal termination, has rendered it one of the diseases most to be dreaded. The greatest number in one year was in 1839, when 222 died. The next greatest was 200 in 1832. To the prevalence of this disease may be attributed, in some measure, the increased mortality of children under five years of age. The recorded cases of *Small pox* have been principally at the quarantine establishment at Rainsford Island. It never prevailed in the city, as an epidemic, during the period under review, until the autumn of 1839. It then spread generally through the city, and produced 60 deaths before the close of the year.

3. *Not classified.* We have adopted this term to designate such endemic, epidemic, or contagious diseases as are not included in either of the foregoing classes. Under *Cholera* are included cholera morbus, and also 78, 89, and 251 cases in the respective periods which are entered as "cholera infantum," and also 78 cases of Asiatic or spasmodic cholera, which occurred in 1832. *Croup* includes the cases of "hives," and "cynanche tra-

chealis." This disease resembles quinsy, subsequently classified under the diseases of the organs of respiration; and the cases may not all be correctly entered in their respective subdivisions. It was thought best, however, to preserve a separate classification. Under *Dysentery* are included the cases of "diarrhœa," having so closea resemblance as to be here classed together. The number of deaths by each disease of this class, excepting *Hydrophobia* and *Syphilis*, have increased, though dysentery has not produced so great a proportion in the nine last years, as it did in the previous ten. The following statement will show the compartive prevalence of each of the principal diseases:

	1811—1820.		1821—1830.		1831—1839.	
Diseases.	Number.	Ratio per 1000.	Number.	Ratio per 1000.	Number.	Ratio per 1000.
Cholera,	122	14.4	149	12.9	407	27.9
Croup,	43	5.	245	21.3	376	25.9
Dysentery,	115	13.5	429	37.4	372	25.5
Hooping Cough,	78	9.2	184	16.0	256	17.5

The total of this class of diseases was 380, 1031, and 1499, or 44.9, 89.9, and 102.9 per 1000 in the respective periods.

SECOND DIVISION.—*Sporadic Diseases.*

1. *Of the Nervous System and Senses.—Brain, Spinal Marrow, Nerves, Eyes, Ears.*—Under *Convulsions* we include cases entered as "fits," "spasms," &c., which are no doubt sometimes erroneously considered as synonymous terms; under *Hydrocephalus* cases of "dropsy in the head," "effusion of the brain," "hydrocephalus internus," &c.; under *Phrenitis* cases of "brain fever," "inflammation of the brain," &c. It appears from the tables that the whole of the diseases of this class have been 562, 980, and 1515, or 66.4, 85.4, and 104. per 1000 in the different periods, showing a slight increase. The entries under each class, excepting epilepsy, insanity, and tetanus, also show an increase. *Insanity* has not appeared to increase, though some allowance should be made for the patients afflicted with this disease, who go to the Lunatic Asylums at Worcester and Charlestown, and sometimes die there. If these were considered in our reports they would probably show a different result, and a slight increase of the disease. The following statement shows the proportional prevalence of the three principal diseases of this class.

	1811—1820.		1821—1830.		1831—1839.	
Diseases.	Number.	Ratio per 1000.	Number.	Ratio per 1000.	Number.	Ratio per 1000.
Apoplexy,	109	12.8	107	9.3	162	11.1
Convulsions,	229	27.	309	26.9	419	28.7
Hydrocephalus,	86	10.1	270	23.6	498	34.1

2. *Of the Organs of Respiration—Larynx, Windpipe, Air-tubes, Lungs,* and *Pleura.* We have included under *Pleurisy* "pleurisy fever," "pleuritis," and "inflammation of the pleura;" under *Phthisis,* "phthisis pulmonalis," and "consumption," also 29 cases in 1820 to 1830, and 18 in 1830

to 1839, returned as "decline;" under *Pneumonia*, "lung fever," "pulmonic fever," and "inflammation of the lungs;" under *Quinsy* "cynanche." In the different periods under consideration, 2460, 2802, and 3214 deaths, or 290.5, 244.8, and 220.5 per 1000, were caused by this class of diseases. This indicates a decrease of 70 per 1000 from the first to the last period. The following table will show the comparative prevalence of the principal diseases:

	1811—1820.		1821—1830.		1831—1839.	
	Number cases.	Ratio per 1000.	Number cases.	Ratio per 1000.	Number cases.	Ratio per 1000.
Pleurisy,	35	4.1	40	3.4	83	5.7
Phthisis,	1891	223.3	2054	179.	2066	141.7
Pneumonia,	436	51.4	580	50.5	937	64.2

The leading disease of this class, and indeed of all classes, is phthisis, or consumption. From these tables it appears to have decreased over one-third from the first to the last period. Entire reliance, however, should not be placed on this statement. There is so much indefiniteness in the application of the term, *consumption*, as well as many other terms in our bills, that it should be regarded only as an approximation to the truth. The more accurate diagnosis recently observed has probably given a different classification to many cases, from that assigned to them in the first period. Consumption is, however, a most formidable disease, not in Boston peculiarly, but in all cities and country towns. Sufficient facts are known to show, that from *one-fourth* to *one-seventh* of all the deaths in the Northern and Middle states, and perhaps throughout the whole Union, and the civilized world, are caused by consumption. This frightful mortality is to be arrested, if at all, by means of prevention, rather than the cure of the disease after it has once become seated. Were a competent individual to write a popular treatise explaining the various causes of the disease, and the proper precautionary measures to be taken to prevent its attacks, to be read and observed by the people, its mortality might be greatly reduced.

3. *Of the Organs of Circulation—Heart, Arteries, Veins, Lymphatics.*—Under *Disease* are embraced 9 cases of "dropsy of the heart," in 1836, and several cases of "angina pectoris" in different years. These diseases have increased, being 22, 81, and 191, or 2.5, 7. and 13.1 per 1000. Of the whole of this class 24, 90, and 200, or 2.9, 7.9, and 13.7 per 1000 occurred in the different periods. It is supposed as the science of medicine progresses, and the diagnosis of disease becomes more perfect, that diseases of the heart will be found to be the cause of more deaths than at present supposed.

4. *Of the Digestive Organs.—Mouth, Œsophagus, Stomach, &c.—Dyspepsia*, as a cause of death, appears less frequently in the two last periods than the first. Under *Gastritis* are included 3 cases of "gastric fever" in 1837; under *Disease* the cases of "aphthæ," "canker," "bowel complaints," and "piles." Canker has sometimes been considered synonymous with scarlatina or quinsy, and some cases should probably have been classed

among those diseases. The following statement will show the comparative prevalence of some of the principal diseases of this class:

	1811—1820.		1821—1830.		1831—1839.	
	Number cases.	Ratio per 1000.	Number cases.	Ratio per 1000.	Number cases.	Ratio per 1000.
Enteritis,	6	.7	162	14.1	320	21.9
Teething,	39	4.6	83	7.2	247	16.9
Worms,	21	2.5	26	2.2	51	3.5

Most of the other diseases specified have decreased, excepting those of the liver, and the other organs mentioned under the general head, and included under *Disease.* These have greatly increased. The whole number of cases were 231, 644, and 1107, or 27.3, 56.1, and 76, in the different periods.

5. *Of the Urinary Organs.—Kidneys, Ureters, Bladder, Urethra.*—Under *Stone* are included all who died of stone or gravel. In the first period there died of this disease 1 in 1411 of all diseases, in the second 1 in 546, and in the third 1 in 2082. Of all the diseases of this class 9, 30, and 22, or 1.1, 2.6, and 1.5 per 1000 occurred in the respective periods.

6. *Of the Organs of Generation.*—Under *Childbed* are included cases of "puerperal fever," 63, 121, and 175, or 7.4, 10.5, and 12. per 1000, in the respective periods, occurred by this disease; and 64, 132, and 192, or 7.6, 11.5, and 13.2 per 1000 of the whole deaths of this class.

7. *Of the Organs of Locomotion.*—Under *Rheumatism* cases of "rheumatic fever" 20, 40, and 40, have been caused by this disease; and by the whole class 26, 61, and 68, or 3.1, 5.3, and 4.7 per 1000 of the whole deaths.

8. *Of the Integumentary System.—Skin, Cellular Tissue.*—The deaths by this class were 3, 17, and 26, or .3, 1.5, and 1.8 per 1000 in the respective periods; *Ulcers* produced the most deaths of this class. "Scurvy" was the cause of 1 death in 1833, and 1 in 1835.

9. *Of Uncertain seat.*—The registered deaths by "*Infantile Diseases*" have been 1587, 883, and 867, or 187.4, 77.9, and 59.4 per 1000 in the respective periods. The "*Sudden*" *Deaths* have been 153, 83, and 70, or 18.0, 7.2, and 4.6 per 1000, showing apparently a large decrease in both of these causes of death. A better acquaintance with morbid anatomy, more accurate medical observation, and greater care in making the returns and records, have given more definite character to the causes of death, and assigned more of them to their proper place. Many cases, which would have been entered in the first period under these names, have in the last been entered under the other and more specific diseases of infancy, or under apoplexy, diseases of the heart, and other causes of "sudden" death. This has apparently decreased the number of cases of infantile diseases and sudden deaths, and increased the number of cases of other diseases in the tables. These facts are to be considered in estimating the comparative mortality of the different diseases. The registered deaths by *Intemperance* have increased, being 65, 257, and 310, or 7, 22.4 and 21.2 per 1000 in the respective periods.

We are inclined to think, however, that the number of deaths by intemperance has not increased so much as the above statement might indicate, but that a different name may have been sometimes given to this cause of death. The cause of the disease, and not the disease itself, may have been entered. An inspection of the table will show great inequalities in the number of entries under different years from other causes. This is especially the case with *Atrophy*, under which are included the entries by "debility," "decline," "cachexia," "emaciation," "marasmus," &c. Since the laws of sporadic diseases are such, as to produce about the same proportion of deaths in the same population, in specific periods of time, it is certain that these entries cannot be relied on as being accurate causes of death. The whole number by all this class of diseases was 2266, 1841, and 2163, or 267.6, 160.5, and 148.4 per 1000 of the whole deaths, showing considerable improvement in diagnosis, but showing also that much is yet to be done before the tables can be made as accurate as they should be.

10. *Old Age.*—The entries under the very indefinite term "*Old age*" were 379, 420, and 581, or 44.8, 36.6, and 39.9 per 1000 in the respective periods. It is worthy of consideration whether many of these cases might not have been entered under some specific disease.

11. *Deaths by Violence.*—The greatest number from any single cause of death under this class is by *Drowning*, the proportion of which has varied, but not increased. The next greatest is inserted under the very indefinite name of *Casualties*, including all who die from accidental causes. The next are by *Burns* and *Scalds*. The deaths by *Suicide* have stood 29, 50, and 95, or 3.4, 4.3, and 6.5 per 1000 in the respective periods, showing a small increase. *Murders* have decreased. The whole number by this class are 305, 499, and 611, or 36.0, 43.5, 41.9 per 1000 in the different periods, showing but little variation.

12. *Unknown Causes.*—The tables state the number of deaths, of which the causes are unknown, to have been 945, 1917, and 1251, or 111.6, 167.1, and 85.8 per 1000 in the different periods. This number has varied, and is now considerably decreased in proportion to the whole deaths, but it is still very much greater than it should be. Greater care on the part of the medical profession, and in making the records would reduce it.

From this view of the causes of death in Boston it appears that 1193, 2037, and 3622 cases, or 140.8, 177.7, and 248.6 per 1000 of all the deaths were from epidemic, endemic, and contagious diseases; and that 7275, 9433, and 10951 cases or 859.2, 822.3, and 751.4 per 1000 of all the deaths were from sporadic diseases. This shows an increase of the first, and a decrease of the second division of diseases, in the respective periods. If, as has been stated, the great criterion of health is the comparative prevalence of one or the other of these two great divisions of diseases, it follows that Boston is not now quite as healthy as it was twenty or thirty years ago. This fact, I think, may be inferred also from other investigations given in this article.

TABLE X, *showing the number of deaths in Boston*

			1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	Total
Endemic, Epidemic, and Contagious Diseases.	1. *Fevers.*	Intermittent	–	–	–	–	–	–	–	1	–	1	2
		Synochus	12	4	6	6	2	10	12	7	42	9	110
		Spotted	–	–	–	–	–	–	–	–	–	1	1
		Typhus	63	23	42	80	51	23	59	119	112	51	623
		Yellow	–	–	–	–	–	10	–	1	1	1	13
		Total	75	27	48	86	53	43	71	128	155	63	749
	2. *Eruptive Fevers.*	Erysipelas	–	–	1	–	–	–	–	–	–	–	1
		Measles	–	–	–	–	21	6	–	1	–	–	28
		Scarlatina	1	–	–	1	–	3	1	1	12	10	29
		Small-Pox	2	–	–	–	4	–	–	–	–	–	6
		Thrush	–	–	–	–	–	–	–	–	–	–	–
		Total	3	–	1	1	25	9	1	2	12	10	64
	3. *Not Classified.*	Cholera	63	2	5	3	1	5	8	3	18	14	122
		Croup	1	1	1	2	6	4	11	5	9	3	43
		Dysentery	29	2	5	4	12	6	23	4	13	17	115
		Hydrophobia	–	–	–	1	–	–	–	–	–	–	1
		Hooping-Cough	14	–	1	5	2	9	19	1	3	24	78
		Influenza	–	–	–	–	1	–	–	–	2	2	5
		Syphilis	12	–	–	–	–	–	–	–	–	4	16
		Total	119	5	12	15	22	24	61	13	45	64	380
Sporadic Diseases.	1. *Of the Nervous System and Senses.* Brain, Spinal Marrow, Nerves, Eyes, Ears.	Apoplexy	13	15	15	3	3	18	17	9	6	10	109
		Convulsions	40	12	21	15	23	18	42	29	20	19	229
		Delirium Tremens	–	–	–	–	–	–	–	–	–	–	–
		Epilepsy	–	–	–	–	–	–	–	–	–	–	–
		Hydrocephalus	33	6	2	3	3	12	–	4	23	–	86
		Insanity	1	2	–	2	2	2	–	–	3	2	14
		Paralysis	12	6	6	9	11	8	6	6	–	16	80
		Phrenitis	–	1	–	1	3	1	6	2	1	7	22
		Tetanus	2	1	–	2	–	1	1	–	–	–	7
		Disease	–	–	1	1	2	1	–	–	–	–	5
		Total	101	43	45	36	47	61	72	50	53	54	562
	2. *Of the Organs of Respiration.* Larynx, Windpipe, Air tubes, Lungs, Pleura.	Asthma	–	2	1	–	–	–	–	–	–	–	3
		Bronchitis	–	–	–	–	–	–	–	–	–	–	–
		Hydrothorax	–	–	2	–	–	–	–	–	–	–	2
		Pleurisy	8	2	7	3	2	1	4	3	3	2	35
		Phthisis	221	190	193	153	190	180	231	138	175	220	1891
		Pneumonia	46	40	41	26	67	61	47	36	46	26	436
		Quinsy	15	17	8	10	7	16	6	4	4	6	93
		Disease	–	–	–	–	–	–	–	–	–	–	–
		Total	290	251	252	192	266	258	288	181	228	254	2460
	3. *Of the Organs of Circulation.* Heart, Arteries, Veins, Lymphatics.	Aneurism	1	–	–	–	–	–	–	1	–	–	2
		Pericarditis	–	–	–	–	–	–	–	–	–	–	–
		Disease	1	1	1	–	–	1	2	5	3	8	22
		Total	2	1	1	–	–	1	2	6	3	8	24
	4. *Of the Digestive Organs.* Mouth, Œsophagus, Stomach, Small Intestines, Colon, Rectum, Pancreas, Liver, Gall-Bladder, Spleen.	Ascites	–	–	2	–	–	–	–	–	–	–	2
		Colic	2	2	–	–	–	–	–	–	–	1	5
		Constipation	–	–	–	–	–	–	–	–	–	–	–
		Dyspepsia	15	2	16	–	1	18	12	12	2	11	89
		Enteritis	1	–	–	–	–	–	–	–	–	5	6
		Gastritis	1	–	–	–	–	–	–	–	–	–	1
		Hernia	3	–	–	–	–	–	–	1	–	3	8
		Peritonitis	–	–	–	–	–	–	–	–	–	–	–
		Tabes Mesenterica	–	1	–	–	2	–	–	–	–	–	3
		Teething	15	10	2	1	–	1	2	–	7	3	39
		Worms	11	–	–	–	–	–	–	–	7	3	21
		Disease		1	–	–	–	–	–	–	–	–	1
		Disease of the Pancreas											
		Hepatitis	–	–	–	3	3	2	–	5	6	6	25
		Jaundice	10	4	5	2	1	3	3	–	1	1	30
		Disease of the Liver	–	–	–	–	–	1	–	–	–	–	1
		Disease of the Spleen	–	–	–	–	–	–	–	–	–	–	–
		Total	58	20	25	6	7	25	15	18	24	33	231

by disease in each year, from 1811 *to* 1839.

1821	1822	1823	1824	1825	1826	1827	1828	1829	1830	Total	1831	1832	1833	1834	1835	1836	1837	1838	1839	Total
–	–	–	–	1	–	–	2	1	1	5	2	1	–	–	4	2	3	–	1	13
18	10	–	19	12	22	9	21	8	14	133	15	5	20	8	23	13	–	3	9	96
–	–	–	1	1	–	–	–	–	–	2	1	–	–	–	–	–	–	–	–	1
45	34	43	62	54	50	46	46	45	33	458	43	60	73	70	101	68	93	43	60	611
-	2	1	1	-	1	-	-	1	-	6	-	-	-	-	-	-	-	-	-	-
63	46	44	83	68	73	55	69	55	46	604	61	66	93	78	128	83	96	46	70	721
-	-	-	-	1	-	8	3	-	-	12	2	4	4	12	9	3	6	17	8	65
149	3	-	2	77	10	-	-	78	13	332	2	70	2	1	188	31	23	20	3	340
4	1	1	-	4	16	8	3	4	5	46	84	200	90	39	73	31	50	106	222	895
-	-	-	1	1	-	3	2	-	1	8	4	2	-	4	7	6	13	3	60	99
..	-	-	1	-	-	-	1	1	1	4	-	-	-	-	3	-	-	-	-	3
153	4	1	4	83	26	19	9	83	20	402	92	276	96	56	280	71	92	146	293	1402
15	5	15	18	24	17	8	26	1	20	149	21	93	20	30	30	30	80	61	42	407
11	10	13	30	30	24	25	25	35	42	245	53	40	43	43	32	31	44	44	46	376
73	40	37	69	60	48	27	31	21	23	429	29	24	41	48	45	38	45	65	37	372
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	5	17	13	27	23	6	40	11	16	184	26	22	28	38	44	17	19	28	34	256
-	-	-	-	7	-	-	-	-	-	7	22	24	1	4	2	2	15	2	-	72
1	2	1	3	3	1	1	3	1	1	17	-	4	-	3	2	-	4	2	1	16
126	62	83	133	151	113	67	125	69	102	1031	151	207	133	166	155	118	207	202	162	1499
7	6	11	9	12	10	10	18	12	12	107	11	15	19	9	19	19	31	19	20	162
22	11	22	36	48	53	29	32	28	28	309	34	41	39	50	51	50	52	60	42	419
5	-	7	4	7	5	1	7	-	2	38	6	10	3	1	4	5	11	10	8	58
1	2	1	2	-	1	3	-	2	-	12	-	1	1	1	2	-	-	2	2	9
6	1	11	33	38	29	24	38	42	48	270	51	44	52	53	48	68	59	67	56	498
4	2	-	2	-	1	5	1	3	4	22	1	-	-	1	10	4	-	-	3	19
22	10	5	12	14	9	6	10	11	14	113	11	19	12	13	19	11	13	7	14	119
15	17	16	-	3	3	7	5	7	-	73	-	-	11	10	-	5	23	25	11	85
-	1	-	2	-	1	-	1	1	-	6	-	1	-	1	1	2	-	-	1	6
-	1	1	-	1	6	6	-	7	8	30	15	19	7	10	8	15	31	23	12	140
82	51	74	100	123	118	91	112	113	116	980	129	180	144	149	162	179	220	213	160	1515
1	2	1	2	2	1	2	1	-	1	13	2	-	3	4	-	4	2	2	8	25
-	-	-	-	-	-	-	-	-	-	-	1	1	-	1	-	-	1	1	1	6
2	-	5	14	3	9	6	1	4	3	47	4	6	7	1	-	6	9	5	3	41
-	5	4	7	6	7	3	2	4	2	40	4	3	8	11	13	14	18	10	2	83
216	166	184	246	220	231	178	217	203	193	2054	203	246	240	246	208	233	212	256	222	2066
31	41	38	77	67	41	36	89	90	68	580	97	106	77	90	141	99	114	113	100	937
5	7	5	11	-	5	2	1	3	4	43	5	6	2	3	6	5	-	-	3	30
-	-	-	15	-	2	-	2	6	-	25	-	-	3	5	1	3	8	2	4	26
255	221	237	372	298	296	229	313	310	271	2802	316	368	340	361	369	364	364	389	343	3214
-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	1	3	-	-	4
-	-	-	7	-	-	1	-	-	-	8	-	-	-	-	-	-	2	3	-	5
5	3	8	4	10	14	7	7	10	13	81	15	13	16	25	14	23	27	28	30	191
5	3	9	11	10	14	8	7	10	13	90	15	13	16	25	14	24	32	31	30	200
-	3	1	2	4	4	2	3	3	2	24	4	4	4	1	-	-	10	2	5	30
-	-	-	-	3	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-
3	-	3	-	7	1	1	-	-	-	15	-	1	-	2	3	3	1	-	1	11
10	5	15	13	15	24	12	33	21	14	162	18	31	23	38	30	35	41	54	50	320
-	-	-	4	-	1	-	2	-	2	9	-	-	1	-	-	-	3	6	-	10
-	1	2	2	2	2	-	1	1	1	12	1	-	-	-	-	-	1	3	-	5
-	-	-	1	3	-	-	-	-	-	4	-	-	-	-	-	-	1	-	-	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	2	10	15	8	23	-	13	12	83	10	21	30	36	24	45	22	30	29	247
-	4	3	3	3	4	4	1	3	1	26	3	7	7	5	6	7	4	3	9	51
1	-	-	22	41	25	39	20	18	16	182	28	38	31	29	44	90	7	10	33	310
-	-	-	-	16	1	-	-	1	-	18	-	-	-	-	-	-	-	-	-	-
3	7	3	-	10	5	3	2	1	-	34	1	3	5	2	1	1	1	4	3	21
5	-	6	-	-	11	7	10	14	17	70	11	9	12	8	25	14	8	5	9	101
1	-	-	-	-	-	-	-	1	-	2	1	-	-	-	-	-	-	-	-	-
23	20	35	57	119	86	91	72	76	65	644	77	114	113	121	133	195	99	117	139	1107

TABLE X, *showing the number of deaths in Boston*

			1811	1812	1813	1814	1815	1816	1817	1818	1819	1820	Total
Sporadic Diseases.	5. *Of the Urinary Organs.* Kidneys, Ureters, Bladder, Urethra.	Diabetes	-	-	-	-	-	-	-	-	-	-	-
		Cystitis	-	-	-	-	-	-	-	-	-	-	-
		Nephritis	-	1	1	-	-	-	-	-	-	-	2
		Stone	-	-	-	-	-	-	3	1	-	2	6
		Disease	-	-	-	-	-	-	-	1	-	-	1
		Total	-	1	1	-	-	-	3	2	-	2	9
	6. *Of the Organs of Generation.*	Childbed	14	5	5	6	4	12	3	4	2	8	63
		Diseases	-	-	-	-	-	-	-	-	-	1	1
		Total	14	5	5	6	4	12	3	4	2	9	64
	7. *Of the Organs of Locomotion.* Joints, Bones, Ligaments, Tendons, Muscles.	Rheumatism	1	-	-	-	-	3	7	-	6	3	20
		Disease	2	-	-	1	1	1	-	-	-	1	6
		Total	3	-	-	1	1	4	7	-	6	4	26
	8. *Of the Integumentary System.* Skin, Cellular Tissue.	Carbuncle	-	-	-	-	-	-	-	-	-	-	-
		Fistula	-	-	-	-	-	-	-	-	-	-	-
		Ulcer	-	-	-	-	-	-	-	1	-	-	1
		Disease	-	-	-	-	-	1	-	-	1	-	2
		Total	-	-	-	-	-	1	-	1	1	-	3
	9. *Of uncertain seat.*	Abscess	2	-	1	-	-	1	3	5	-	1	13
		Atrophy	20	-	-	-	1	37	-	-	-	-	58
		Cancer	5	-	1	-	6	2	11	3	3	1	32
		Debility	28	-	-	1	-	-	-	2	9	4	44
		Dropsy	21	16	17	17	14	12	36	23	23	14	193
		Gout	3	-	1	2	1	-	-	1	-	4	12
		Hæmorrhage	4	1	1	-	-	1	3	4	5	4	23
		Infantile Diseases	-	133	206	208	222	195	157	156	147	163	1587
		Inflammation	-	-	-	-	-	-	-	-	-	-	-
		Intemperance	2	12	-	-	-	3	3	3	11	31	65
		Malformation	-	-	-	-	-	-	-	-	-	-	-
		Mortification	11	4	7	8	6	13	9	4	-	7	69
		Scrofula	-	-	-	1	1	-	1	2	1	8	14
		Sudden Deaths	25	24	11	14	11	21	13	12	13	9	153
		Tumor	-	-	-	-	-	-	-	2	-	-	3
		Total	121	190	245	251	262	286	236	217	212	246	2266
	10 *Of Old Age.*—Old Age		26	35	48	39	44	37	50	32	29	39	379
	11. *Deaths by Violence.*	Burns and Scalds	6	2	2	5	5	5	9	2	3	3	42
		Casualties	16	6	9	3	4	5	7	14	8	12	84
		Drinking Cold Water	2	-	-	-	-	-	-	2	2	1	7
		Drowned	13	10	15	10	12	12	13	12	13	9	119
		Fracture	-	1	-	-	-	-	-	-	-	1	2
		Frozen	-	-	-	-	-	-	-	-	-	-	-
		Hanged	-	-	-	-	-	-	1	-	-	4	5
		Murdered	-	-	-	-	1	2	-	-	1	2	6
		Poisoned	-	-	1	-	1	-	-	-	1	3	6
		Suffocation	-	3	1	-	-	-	-	-	1	-	5
		Suicide	1	-	-	1	6	4	3	4	4	6	29
		Total	38	22	28	19	29	28	33	34	33	41	305
	Unknown Causes		43	32	39	43	71	84	32	237	178	187	945

by disease in each year, from 1811 *to* 1839.—*continued.*

1821	1822	1823	1824	1825	1826	1827	1828	1829	1830	Total	1831	1832	1833	1834	1835	1836	1837	1838	1839	Total
.	.	.	.	.	.	1	1	.	1	3	.	.	.	1	.	1	2	1	.	5
.	.	.	.	1	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1	3	2	2	2	4	2	1	2	2	21	.	1	.	1	1	3	.	.	1	7
.	.	3	1	.	.	.	.	.	1	5	.	2	1	3	.	1	2	1		10
1	3	5	3	3	4	3	2	2	4	30		3	1	5	1	5	4	2	1	22
7	9	5	13	17	12	11	14	17	16	121	14	14	17	14	29	23	19	27	18	175
2	.	.	4	.	.	1	2	2	.	11	.	1	.	.	1	2	5	7	1	17
9	9	5	17	17	12	12	16	19	16	132	14	15	17	14	30	25	24	34	19	192
6	2	2	9	6	4	4	2	3	2	40	4	3	4	5	4	7	3	6	4	40
2	1	2	3	2	2	1	1	3	4	21	2	3	5	2	3	4	.	5	4	28
8	3	4	12	8	6	5	3	6	6	61	6	6	9	7	7	11	3	11	8	68
.	.	1	1	.	.	.	.	1	.	3	1	.	.	.	.	.	.	.	.	1
.	.	.	.	.	2	1	3	.	1	7	.	.	.	.	.	.	.	.	.	
.	.	.	.	.	.	1	.	1	.	2	3	2	1	1	9	1	3	.	.	20
.	1	.	.	1	3	.	.	.	.	5	1	1	.	1	2	.	.	.	.	5
.	1	1	1	1	5	2	3	2	1	17	5	3	1	2	11	1	3	.	.	26
3	5	4	9	2	6	2	2	1	3	37	4	8	4	4	.	3	5	5	5	38
1	1	9	13	12	.	.	.	.	.	36	.	.	2	10	31	23	32	54	34	186
3	12	3	9	7	6	4	5	3	6	58	5	5	12	15	9	6	14	12	8	86
8	4	6	16	.	18	6	6	10	8	82	20	15	12	13	29	11	1	5	11	117
32	43	18	12	28	32	25	20	12	15	237	28	38	24	27	38	35	42	23	28	283
.	1	2	2	1	1	.	.	1	.	8	.	.	1	1	.	1	.	.	.	3
1	2	.	.	.	.	.	.	.	7	10	.	.	.	.	.	.	3	4	5	12
153	244	184	32	44	40	35	55	55	41	883	56	70	100	95	111	176	59	112	88	867
.	.	.	3	.	3	4	4	11	1	26	3	3	.	1	2	1	4	20	1	35
31	25	10	22	23	38	25	34	30	19	257	38	44	40	39	37	41	17	24	30	310
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1	2
8	8	4	12	8	9	9	7	8	4	77	9	9	4	9	10	6	11	3	.	61
5	2	4	3	4	1	2	5	4	5	35	2	3	5	8	13	9	13	5	7	65
6	9	5	7	35	.	3	2	7	9	83	5	9	5	4	12	12	.	13	10	70
1	.	.	2	1	2	3	.	.	3	12	5	2	2	2	7	1	1	3	5	28
252	356	249	142	165	156	118	140	142	121	1841	173	206	211	228	299	325	202	284	233	2163
31	36	39	33	38	40	37	54	65	47	420	67	62	57	54	72	82	69	65	53	581
14	4	3	15	5	13	8	0	5	10	86	16	10	11	5	11	10	12	20	15	110
18	17	24	2	11	14	14	14	12	8	134	14	18	19	22	25	32	14	22	16	182
.	.	.	2	6	.	.	.	.	.	10	1	.	.	1	1	.	.	3	.	6
19	21	16	18	21	22	21	16	19	15	188	15	22	10	25	16	17	23	19	30	177
.	.	2	.	.	.	.	2	1	.	5	1	.	2	.	.	1	.	1	2	7
.	.	.	.	1	1	.	.	.	2	4	1	.	.	1	.	.	.	.	.	2
.	.	.	.	.	1	.	.	.	.	1	.	.	.	.	7	2	.	.	.	9
1	6	.	.	1	.	.	.	.	.	8	.	.	.	1	.	3	.	.	1	5
.	.	.	.	1	1	1	2	1	.	6	1	.	.	3	1	.	.	4	1	10
1	2	.	1	1	.	1	.	1	.	7	2	2	2	.	.	2	.	.	.	8
2	5	3	5	4	5	4	9	5	8	50	12	8	14	11	9	13	10	8	1	93
55	55	48	43	51	57	49	54	44	43	499	63	60	68	69	70	80	59	77	75	611
241	218	211	197	227	161	153	180	160	152	1917	182	126	85	105	88	85	269	182	129	1251

TABLE XI, *showing the number of deaths, and the ratio per* 1000 *by each class of diseases, in the three periods,* 1811–1820, 1821–1830, *and* 1831–1839.

Diseases.	1811–1820.		1821–1830.		1831–1839.	
	Number of d'ths.	Ratio per 1000.	Number of d'ths.	Ratio per 1000.	Number of d'ths.	Ratio per 1000.
Fevers,	749	88.4	604	52.7	721	49.5
Eruptive Fevers,	64	7.5	402	35.1	1402	96.2
Not classified,	380	44.9	1031	89.9	1499	102.9
Total Epidemic, Endemic, &c. diseases,	1193	140.8	2037	177.7	3622	248.6
Nervous system,	562	66.4	980	85.4	1515	104.0
Organs of Respiration,	2460	290.5	2802	244.3	3214	220.5
Organs of Circulation,	25	2.9	90	7.9	200	13.7
Digestive Organs,	231	27.3	644	56.1	1107	76.0
Urinary Organs,	9	1.1	30	2.6	22	1.5
Organs of Generation,	64	7.6	132	11.5	192	13.2
Organs of Locomotion,	26	3.1	61	5.3	68	4.7
Integumentary System,	3	.3	17	1.5	26	1.8
Uncertain seat,	2266	267.6	1841	160.5	2163	148.4
Old Age,	379	44.8	420	36.6	581	39.9
Deaths by violence,	305	36.0	499	43.5	611	41.9
Unknown causes,	945	111.6	1917	167.1	1251	85.8
Total Sporadic diseases,	7275	859.2	9433	822.3	10951	751.4
General Total,	8468	1000.0	11470	1000.0	14573	1000.0

This article has already extended so far that the author is induced to omit all comparisons between Boston and other places, in regard to the prevalence of particular diseases, or the general mortality. He has a series of the bills of mortality of the principal cities in the United States, and a great mass of similar facts from Europe, which he reserves for a future consideration.

Since the foregoing article was in the hands of the printer the population of Boston, and the bill of mortality for 1840 have been obtained; and it is deemed expedient to annex the following abstract of these documents.

A census was taken by authority of the state, on the first day of May, for the purpose of an apportionment of the representatives in the legislature, which excluded some classes of the inhabitants. According to the census of the United States the whole population was 93,470, whites 91,188, or 97.55 per cent., and coloured 2321, or 2.55 per cent. Of these 10,805 were returned as engaged in navigation, a large portion of whom, being constantly absent, should not be embraced in the comparative estimates of the deaths to the living. The white population, among whom the recorded deaths occur, may be estimated at 84,311, and the coloured at 2321. The deaths in 1840, exclusive of the still born, were 1841 whites, or 1 in 47, or 2.10 per cent. and 64 coloured, or 1 in 36, or 2.75 per cent. being about the average for the

previous years. The whites were distributed according to ages, as in the following table. The male deaths were 951, and the female 890. There were 45 more males than females died under five years of age.

Age.	Population in 1840.				Deaths in 1840.				
	Number in each age.	Number surviving each age.	Proport'n in each age.	Proport'n surviving each age.	Number in each age.	Number surviving each age.	Proport'n in each age.	Proport'n surviving each age.	Proport'n to living each age.
Under 5	11393	84.311	13.51	100.	784	1777	44.12	100.00	6.88
5 to 10	8725	79.918	10.35	86.49	70	993	3.94	55.88	.80
10 to 20	15809	64.193	18.75	76.14	100	923	5.63	51.94	.63
20 to 30	22337	48.384	26.49	57.39	200	823	11.26	46.31	.99
30 to 40	13666	26.047	16.21	30.90	226	623	12.72	35.05	1.65
40 to 50	6546	12.381	7.77	14.69	133	597	7.48	22.33	2.03
50 to 60	3404	5.835	4.04	6 92	110	464	6.19	14.85	3.23
60 to 70	1561	2.431	1.85	2.88	69	154	3.88	8.66	4.42
70 to 80	641	.870	.76	1.03	47	85	2.64	4.78	7.33
80 to 90	202	.229	.24	.27	33	38	1.86	2.14	15.95
Over 90	27	.027	.03	.03	5	5	.28	.28	18.55
	84311		100.00		1777		100.00		2.10

Diseases.—Of 533 deaths caused by endemic, epidemic, and contagious diseases, 97 were from fevers, 202 from eruptive fevers, and 234 from others not classified. Of these 89 were by typhus fever, 76 by scarlatina, 116 by small pox, 55 by cholera, 58 by dysentery, and 70 by whooping cough, showing, by comparing it with Table X, an increased prevalence of some diseases, and a decrease of others.

Of the 1308 deaths caused by sporadic diseases, 200 were by diseases of the nervous system, 402 of the organs of respiration, 18 of the organs of circulation, 126 of the organs of digestion, 1 of the urinary organs, 24 of the organs of generation, 8 of the organs of locomotion, 5 of the integumentary system, 295 of uncertain seat, 64 of old age, 79 by violence, and 86 by unknown causes. The stillborn were 131. This shows no peculiar feature in the prevalence of these diseases, when compared with the prevalence of the same diseases for the previous nine years.

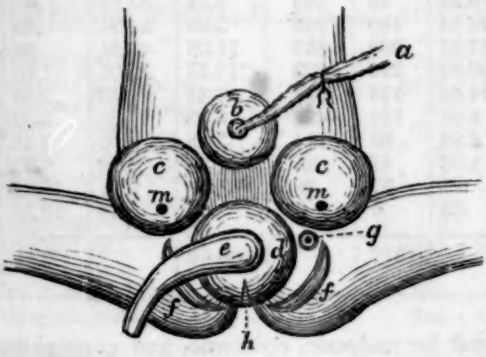
Art. VII. *Case of Malformation.* By E. Mitchener, M. D., of New Garden.

Mrs. E., the wife of J. P., was delivered of her second child on the night of the 12th of fifth month (May) last. The child was small, but appeared to have arrived at its full time. It was malformed and imperfect in a great degree. The left foot had only three toes; the greater of which was separated from the other two by a fissure, which extended to the tarsal

extremity of the metatarsal bone. Owing to deformity of the tarsus, its superior part was closely applied to the anterior face of the tibia. But the principal deviation from a normal state—the wildest freak of nature—existed in the pelvic and genital organs.

The following description and rough sketch were made on the next morning after its birth, and the notes of its progress continued until death:—

A depressed circular tumour, *b*, surrounds the insertion of the *funis umbilicalis* for the distance of three-fourths of an inch, filled with the gelatiform substance of the cord, and covered by its transparent investing tunics. Below and on each side of the umbilicus, nearly in the situation of the abdominal rings, there are two other very prominent hemispherical tumours *c*, *c*, of about an inch and a half in diameter, soft, elastic, and inflated, and which become more tense when the child cries. Externally, they are of a bright florid colour, and have a villose appearance, very much resembling the lining of the rectum when prolapsed. Near their lower edges are two apparent orifices, *m*, *m*, which, however, will not admit a probe. These may prove to be the terminations of the ureters.



Centrally between and below the parts just described, and occupying the pubic region, is another broader tumour, *d*, less prominent than the last, but becoming much more distended when the child cries, and which is surmounted by a long tubular pendulous body, *e*, of a conical form, and strongly bent downwards near the extremity. It is about three and a half inches long, one inch in diameter at base, and half an inch at the end. When the child reposes, it is rather soft and flaccid; but crying or other exertion causes it to become swollen or inflated, and it then rises up in the position of an erect penis, still, however, retaining its curvature. This body, as well as the tumour which supports it, is made up of the same florid villose material which I have already described. In a state of collapse, the surface becomes transversely rugose. The extremity is pervious, and, soon after birth, gave exit to a copious discharge of meconium. Inflation is generally followed by an evacuation of flatus or of fæcal matter. There seems to be little doubt that this is the rectum misplaced without the body.

Exterior to and below the tumour, *d*, on either side, and separated from it by deep fissures, are found the *labia pudendi*, *f*, *f*, with the *nymphæ* on their inner facets. These labia are separated more than an inch at their lower extremities, and diverge still wider above.

Within the labium of the left side, and rather above it, is to be seen a

small orifice, *g*, with a hard projecting margin, and filled with a thick tenacious mucus. This bears a striking resemblance to the infantile *os uteri*.

On raising the inferior edge of the tumour, *d*, there is a vertical fissure brought into view between the nates at *h*, which is lined with mucous membrane, and ends in a *cul-de-sac* at the depth of half an inch. This is doubtless the result of an effort to form a *vagina* in its natural situation.

The *pubic bones* appear to be entirely wanting, and, in consequence, the *illiæ* are so drawn asunder as to give the posterior aspect of the pelvis a peculiar flattened appearance.

May 14*th*.—The child appears tolerably comfortable, but does not suck or take nourishment of any kind. The umbilical tumour is very much shrunk and circumscribed by a red line; *c*, *c*, have also contracted, and do not fill with flatus when the child cries. There appears to be a slight *stillicidium of urine*, but its source is not ascertained.

15*th*.—The little sufferer is more feeble and suffers much. The whole morbid mass is reduced in size; the denuded parts incline to bleed when touched, and there are small ulcers forming.

17*th*.—My friend Henry Gibbons, M. D., of Wilmington, Del., saw the child with me. Its sufferings are so great as to demand anodynes to mitigate them. General appearance not much changed.

19*th*.—The funicular tumour is dry and black, and partly separated. Some of the ulcerated parts have cicatrized. The local appearances are improved, but the general strength is sinking, and the child takes no food.

29*th*.—The little patient continued to endure great suffering without other material changes, until this afternoon, when it died, being the seventeenth day from the time of its birth.

30*th*.—Eighteen hours after death I made a hasty examination of the body, assisted by my friend and pupil, Thomas Hobson, Jun.

Body greatly emaciated. The diseased parts, owing partly to the feeble state of the circulation before death and partly to their denuded condition are shrunken, black, and almost dry, but not gangrenous.

A transverse incision was carried across the epigastrium, and thence downwards on each side along the crests of the illiæ. On raising the flap so formed, the subjacent viscera presented marks of considerable peritoneal inflammation, adhesions and effusions of lymph. The *liver* was much enlarged, particularly the middle lobe, which was produced downwards, in form of an acute triangle as far as the pubes. The *gall-bladder* was on a line with the superior iliac crests. The sigmoid flexure of the *colon* did not exist. Instead of dipping down into the left iliac region it took a more direct course down to the tumour, *d*, which it entered and from which it was easily withdrawn, at the same time inverting the tubular body, *e*, and proving it to be an inversion and prolapsus of the *rectum*.

The *left kidney* was very large. Its *pelvis* and the dilated *ureter* contained about an ounce of turbid flocculent urine. A probe passed readily

along the ureter, following the curve of the sacrum to near the *os coccygis*, where it terminated. The *right kidney* appeared to be normal; and the *ureter*, which would not carry a probe, was traced to the interior of the corresponding tumour, *c*.

On the inner surface of the flap, and corresponding with the tumours, *c*, *c*, were two cone-shaped bodies, which projected more than an inch into the abdominal cavity. At the base they were of a firm texture, but soft and fimbriated towards the extremity. These proved to be *two uteri*, and were inserted into the interior of *c*, *c*, as their proper *vaginæ*. The orifice at *m* on the right side was common to the *ureter* and *vagina* belonging to it; *m* on the left was found to be impervious, and the entrance to the vaginal tumour, *c*, was through *g*. The mouths and necks of the uteri were normal, but the bodies were membranous and the *Fallopian tubes* could not be distinctly traced. No *ovaria* were observed but they might have been easily overlooked.

Remarks.—The appearance at *m* on the left was doubtless an attempt to form an outlet for the *kidney and uterus* similar to the one on the right, but those emunctories had already taken a different direction. The fissure at *h* seems also to have been an attempt to form a *vagina*, and, in accordance with the plan, we find the *left ureter* seeking an outlet in that vicinity. The entrance of the *left vagina* is brought somewhat *in situ* between the *labia* with an accompanying indication of a *urethra* above it. The *ureter* indeed wanders far from its associate, the *uterus*, but, as we have seen, it goes to form another association quite as natural with the imperfect *vagina* at *h*, and its embracing *labia and nymphæ*. On the right we also find an unfinished *uterus and vagina*, and, in the absence of the urinary *bladder*, the *ureter* bears them company in their exile.

When nature is once turned out of her ordinary course, it is both curious and instructive to watch the efforts which she makes to fulfil her original design.

MONOGRAPH.

ART. VIII.—*On the Diseases of the Intestines.* By N. CHAPMAN, M. D. Professor of the Institutes and Practice of Physic, and Clinical Practice in the University of Pennsylvania.

THAT portion of the digestive tube, denominated the intestinal, is scarcely of less importance than the stomach itself, exercising the same sort of influence over the general organization or economy, and from its vast extent, and intimate connections, is exposed to numerous and infinitely diversified morbid affections of the deepest interest, in whatever light they may be surveyed. Of these, the first in the order of examination is:

Enteritis, or Inflammation of the Bowels.—In reciting its history, we have to encounter the same embarrassment experienced in regard to gastritis,—it being also, a simple phlegmasia or local affection, or complicated with general febrile disturbance. My design is to contemplate it as much as possible, in the former light, avoiding what has been previously said of it under the head of fevers, and especially in relation to the doctrine of *dothinenteritis*, on which I have already delivered my sentiments, and am now to pass over the subject with a rapid sketch only, since I shall have to review it again, and minutely, in treating of diarrhœa, dysentery, colic, cholera, and other modifications of essentially the same pathological condition. Till of late, it has been customary with writers in delineating this disease, to view it as one common affection of the whole intestinal canal, without any reference to the portions of it concerned, or the tissue in which it may be more immediately seated. These are circumstances, however, which vary the case materially, and as involving some practical results, should, independently of any nicety of pathological distinction, claim attention. The fact however is, that in attacks so violent as to constitute what is usually deemed acute enteritis, it mostly happens that the inflammation is not restricted to any one tissue. Commencing as it generally does in the mucous, or should it conversely in the serous, which is much less common, it involves in its progress ordinarily, the other coats, so as to form a case embracing the whole. An exclusive mucous phlogosis is exhibited, perhaps, only in mild diarrhœa, and even here, it is among the rarest of events. That the contrary has been maintained, I am aware, and indeed, to such extravagance is the notion now carried by some, as altogether to disregard every other than those of the mucous membrane, in the discussion of the affections of the bowels. But surely this is wrong, the evidence of symptoms, and the phenomena on dissection, concurring to establish an opposite conclusion, or the very general involvement of the whole of the tissues in a greater or less degree, primarily or ultimately.

The course I mean to pursue is, first, to describe enteritis generally, and then to notice it in the subdivisions, and particular characters it receives from the considerations to which I have alluded. No disease, perhaps,

exhibits a greater variety of aspects than enteritis, as well for the reasons just mentioned, as from the gradations of severity, and extent of complications to which it is liable. But taking the average of cases, there is with preclusive chilliness, or cold sensations, sooner or later followed by some febrile reaction, clammy mouth, furred tongue, internal heat, pain occasionally dull or gravative, though oftener acute, lancinating, or spasmodic, especially around the umbilicus, usually increased by pressure, attended by nausea or vomitings, purgings or constipation, according to the location of the phlogosis, and occasionally by some embarrassment of urination, much thirst, or sometimes none at all, the circulation rather depressed, or full and slow, or hard corded, and accelerated, with strong pulsatory sensations in the aorta;—the skin hot and dry, of the belly, while on the extremities it may be the reverse;—extreme anxiety and restlessness, and not unfrequently a tendency to delirium. These symptoms, or some of them at least, in diverse combinations, are progressively increased, and at the same time, there is in some instances, more development of certain secondary affections, among which are those of the brain and liver, or other of the collatitious organs. The case, however, having passed over the stage of active phlogosis, we shall perceive a gradual decay of vital energy, marked by a feeble or scarcely perceptible pulse, collapsed surface, dewy perspiration, low, muttering delirium, haggard or contracted countenance, relaxed muscles, meteorism or distension of the abdomen, singultus, puking or purging of albuminous or mucous matter, or of dark, thin, and often of a granular or flocculose fluid, with hurried and laborious respiration. The tongue, at this period, may be either heavily loaded at the root and centre, with florid tip and edges, or more generally red and dry, or even chapped, in which respect there is considerable difference.

As described, such is ordinary enteritis. But on some occasions, where reaction does not take place, we have, throughout its career, the manifestations of extreme prostration of the forces of life. Not to anticipate remarks reserved for the future, it may now suffice to state, that while in some instances it resembles very much the advanced stages of the inflammatory form of the disease, it more frequently imitates the typhoid conditions of dysentery.

Cold, variously applied, is the common cause of this disease, and next to it perhaps, are lodgements of irritating ingesta, or obstinate constipation, though it may arise from many other causes, and, indeed, all those enumerated as exciting gastritis.

Efforts recently have been employed to indicate the differences in the inflammation of the bowels, as influenced by the circumstances previously mentioned, and though in many instances the criteria will fail, they ought to be known from their sometimes serving the purpose. The upper portion of the tube being phlogosed, there is ordinarily constipation, and the contrary as regards the lower. Not a little, however, depends on the tissue engaged. Thus, where the muscular coat is exclusively so, in any part of the tube, constriction of the bowels, with retention of their contents is the consequence, and the reverse, when the mucous surface is only implicated. But we have further distinctions.

Duodenitis is designated by most of the symptoms of inflamed stomach, vomiting, epigastric oppression, puffiness, and occasionally by an icterose aspect, as we see more particularly in what are termed bilious autumnal, and vellow fevers, where the stomach and duodenum are much more

affected than the liver, or indeed any other organ or structure. Even confirmed jaundice, a fact which I claim first to have published, is sometimes connected with this pathological condition of the upper portion of the digestive tube, though oftener with the chronic forms of it.

It is confessed that we have no signs by which *jejunitis* is distinguishable, owing probably, to the comparative exemption of this intestine from inflammation, and when attacked, it is in combination, and not separately.

The phenomena supposed to be among the most characteristic of *ileitis*, are the absence of acute pain, and less tenderness, and without vomiting, than in gastro-duodenitis. But this is not universally true, these symptoms, in colic especially, being in the highest degree of exasperation, and are by no means seldom met with. Greater confidence, I think, is to be placed on the position of the pain, and sensibility on pressure, which are around the umbilicus, descending however much lower, or into the hypogastrium, with difficulty of urination, very early meteorism, and above all, the absence of those circumstances denoting the lesions of the superior and inferior sections of the bowels.

Excepting the location of the pain in the right iliac and inguinal regions, attended by some tumefaction at these points, I know of nothing very expressive of an inflamed cæcum.

Characteristic mainly of *colitis*, is a diffused pain and tenderness over the abdomen, though particularly in the direction of the arch of the colon, a sense of weight in the pelvis, frequent purgings of vitiated matter, indicative of defective fecation, resembling the discharges in diarrhœa or dysentery. Tormina and tenesmus, with sometimes hæmorrhoidal irritation, are probably the least equivocal signs of *rectitis*.

Enteritis of the several sections of the tube is thus represented. But I must repeat, that in its distributions, it is hard of recognition, and probably does not admit of being clearly designated with any sort of uniformity. But there are some claiming to do it, who if they really possess the power, I can only say, that they have a degree of perspicacity, which I have never witnessed in others, or can possibly arrogate to myself.

It was the habit of the late Professor Shippen, of facetious memory, when demonstrating the small intestines especially, having pointed out their ordinary divisions, to say, that these were arbitrary, and that, pulling at the gut, when we got tired calling it duodenum, we might call it jejunum, and then ileum. From the want of definite diagnostics, I apprehend that we are compelled to pursue pretty much the same course in our pathological consideration of this structure.

The phenomena of enteritis are modified by other circumstances. As in gastritis, the mucous and cellular membranes being alone affected, the pulse is comparatively slow and soft, there is scarcely any pain, the secretions are augmented, and variously changed, with a heavily coated tongue, while an affection of the muscular fibres is denoted by the predominance of spasm—and of the peritoneal covering, by lancinating pain, attended by a more wide spread tenderness, whitish furred tongue, and in each of the latter instances, by a small, corded, accelerated pulse.

Nor, perhaps, is it always easy to distinguish enteritis from the inflammation of the stomach and some other parts. The analogy between it, when seated in the upper intestine, and gastritis, is indeed so close, that many of the recent writers confound them under the title of gastro-duodenitis. But, though usually united, they may certainly have a distinct ex-

istence. By Andral it has indeed been actually demonstrated, and, in this state of separation, are sometimes susceptible of recognition, by a careful collation and comparison of their respective symptoms.

Nearly the same may be said of pancretis and hepatitis, each of which may so simulate the phlogosis of the small intestines especially, as to demand a similar scrutiny of their features. Less perplexing is the discrimination of diarrhœa, dysentery, cholera, colic, and *parietal* peritonitis, as we shall see when we arrive at the consideration of these diseases.

Expressive of a favourable issue in enteritis, in its several locations, are the gradual subsidence of pain, the yielding of the bowels, if constipation has existed, with natural or improved stools;—quiescence of the stomach and of the cerebral and nervous system; a more equable pulse; softening of the skin, and warm vapoury diaphoresis. Conversely, should the pain suddenly cease, with a languid circulation;—cold surface;—clammy sweats; collapsed countenance; tumid, and particularly tympanitic, abdomen;—obstruction of the bowels, or sour watery fœtid or dark stools, resembling coffee grounds;—singultus, or vomitings of a similar dark fluid; suppression of urine;—hurried respiration;—delirium, and jactitation;—we may infer a fatal result.

In noticing the anatomical characters of this disease, I commence with those of the small intestines. The mucous coat is most prominently concerned. We find here, on its surface, more or less of tenacious mucus or serum, or sometimes extravasations of coagulable lymph, or of blood, pure or otherwise. These fluids being removed, the lesions commonly observable, are an injection of the vessels, exhibiting an arborescent appearance, or the more diffused florid blush of inflammation, which is comparatively seldom, or of a more or less slatish or brownish hue, or of patches or stellated specks only, of these several shades or only ecchymosis. Gangrene, even in the worst cases, is not an ordinary occurrence in the small intestines. But softening of texture, which probably has been mistaken for it, often exists, and sometimes the reverse, greater consistency or density.

Besides these phenomena, appertaining to membranous inflammation, the follicular structure may be variously depraved. The isolated glands of Brunner, as well as the aggravations of the same cryptous formations of Peyer, are, especially in some instances, more or less developed or enlarged, sometimes becoming very conspicuous by their increased prominency, and are preternaturally red and gorged with blood. These are usually associated with inflammation of the tissues, though it has been asserted, that they may exist independently, and, in which event, the affection is held to be peculiar, constituting the *dotheninteritis*, a species of exantheme, as held by Brettonneau, Louis, &c. As formerly mentioned, this lesion is most commonly to be met with in the lower portion of the ileum, about the ileo-cœcal valve, though no portion of the intestinal canal is exempt from it, the glands of Brunner and Peyer being its principal seat. No doubt ulceration of the tissues, as well as of the follicles, do sometimes take place in acute enteritis, and, indeed, has been seen on numerous occasions by myself. But I reserve the description of it till I come to the chronic state of the disease, in which it oftener and more decidedly prevails.

Combined with many of the incidents enumerated, we occasionally meet with in the large intestines, most frequently in the colon, gangrene,

the part black, rotten, and singularly offensive. But there is another and very different condition which may be confounded with it. From extreme congestion of the vessels, it sometimes happens that a large portion of the intestines becomes perfectly black, without, however, any rottenness of texture or offensiveness of odour. The commencement of the colon is the principal seat of the phlogosis and its ravages, neither the sigmoid flexure nor other portions being so apt to suffer. Common to both sections of the intestinal tube are constrictions, and involutions and introsusceptions are frequent in the upper one. These are the productions of irritation of the muscular fibres, which are redder and more defined than natural, and such too is the aspect of the serous covering when implicated with effusions of lymph in some instances on its surface. The inflammation sometimes extends further, embracing the *parietal* peritoneum, the mesentery and its glands, the omentum as well as the liver, and other organs inducing diverse changes.

Closing the account of the lesions in this case, it may be proper to state, that as, in relation to the stomach, some of the appearances hitherto deemed criteria of phlogosis, such as vascular fulness or injection, or the complexion of the surface, whether florid or dark, or slaty, are not conclusive of this pathological condition, they occurring where it could not possibly have existed. Nor is the contrary less true, or that inflammation does occasionally happen in this structure, and of great intensity, without any evidence whatever, during life, of its having prevailed, it being revealed only by dissection.

No elucidation is required of this or other phenomena connected with the disease, after what was said under a former and similar head, and I shall, therefore, proceed to the treatment, and which, as respects the upper portion of the intestinal tube, is also essentially the same as that of gastritis.

My remarks on the one as to the delicacy of the texture, the rapidity of the inflammatory process, and the urgency of the call for bold and decisive practice, are here equally applicable. The only difference of any moment in the two cases relates to the greater necessity in enteritis of opening the bowels. Though, from the irritation, there may be frequent mucous, watery, or bloody discharges, there is still, in many instances, a retention of fæcal matter, or even unrelenting constipation. Before we meet this indication, especially in violent attacks, by the use of purges, the loss of blood becomes indispensable to reduce the phlogosis. Neglecting this measure, the former are either impotent or exasperate the condition. Constipation here is owing, for the most part, to a want of power in the bowels to propel their contents from the intensity of the irritation, and particularly of the muscular coat. This being subdued, the difficulty ceases. By far the most effectual means of doing it is venesection, when urged to an adequate extent. But the lancet being forbidden by prostration of strength or other causes, or the anticipated effect not following its use, leeches or cups may be very advantageously substituted. These should be aided by cold applications, or warm fomentations, according to circumstances, and ultimately by a blister to the abdomen. Thus prepared for their administration, purgatives are to be exhibited—the best of which is the blue pill, worked off by castor oil or Epsom salts.

Enemata are preferred by some of the recent writers, under the supposi-

tion that purgatives, by the harshness of their operation, might prove injurious. Not having seen it, however, in practice realised, I presume the apprehension to be groundless, and, hence, I act otherwise. Fæcal matter, or an accumulation of acrid colluvies being allowed to remain, must be aggravatory of irritation and phlogosis. Enemata are generally ineffectual to the removal of such collections, and utterly fail when the latter are lodged high up the bowels. Besides which, there are few persons, in this country, such is the invincible prejudice to it, who will consent to be *bored* in this way, not to advert to the unskilfulness of the nurses, from their want of experience, by which the object of the remedy is defeated. Many ludicrous blunders have come under my observation in the awkward attempts to administer enemata.

The depreciation of purgatives here, I suspect, has proceeded from the premature use of them, without the preliminary depletion I have enjoined, or the drasticity of the articles employed, or the too long continuance of the process, as well, perhaps, as the influence of some late theoretical views. Their inappropriateness to the early state of the disease has been shown, and it is quite certain, that they are mischievous when of an active character or unduly repeated: so cautious, indeed, am I on this point, that I rarely resort to them, after the first employment, contented with keeping the bowels soluble by the mildest aperient medicines or injections, when the latter are permitted, and can be properly administered. For every other part of the treatment, I must refer to what was delivered in regard to gastritis.

Nevertheless, as we have seen, the lower section of the intestines may be differently affected, or instead of constipation, diarrhœa or dysentery exists in various gradations of force, with, however, such modifications in these affections, that they will hereafter claim a distinct notice. Enough is it for the present to state, that the leading object being, as in the phologis of the upper section of the tube, to subdue this condition, the same means are exacted, and on the attainment of which, then to evacuate the bowels in order to removal of scybalæ, or offensive matter of any kind, with an occasional appeal to opiates and other lenitives of pain. As applicable to the disease, wherever seated, it is to be observed, that the patient should be confined to his bed, nothing exacerbating it more than locomotion, and that the diet and drinks ought to be of the blandest description, barley or rice water, or thin mucilage, or the farinaceous preparations, so as to create no irritation or to form any mass of fæcal matter.

Chronic Enteritis.—From the close resemblance of acute and chronic inflammation of the bowels in reference to the whole intestinal tube, a very rare event in either case, I have little to add to what has been said of the symptoms of that general affection. It is only indeed, of late, that we have had any precise information of the chronic lesions of this structure, and previously lingering enteritis was contemplated merely as a protracted dysentery. No longer, however, are we ignorant of its exhibiting all the forms of the acute attack, these modifications being determined by the same circumstances. Existing, as we are now to contemplate it, the affection runs a very indefinite course, gradually becoming more and more exasperated, as well in its original symptoms, as by the acquisition of new ones, properly appertaining to it, or arising from adventitious complications. Disorganisations ultimately take place, and then it assumes

another character, as we have seen, in regard to the stomach in similar conditions.

It were unnecessary, after this general statement, to describe more minutely the symptoms of the various stages of this pathological condition, and especially as the deficiencies in this respect will be, in a great measure, supplied by the account I shall immediately give of the peculiarities it derives from its locations in the several portions of the bowels.

Chronic enteritis is occasioned by a slower process of inflammation, of a primary nature, from similar causes, or follows, secondarily, an acute attack.

Let us now see its modifications from position. Except in a few particulars, they do not vary in the two states of the disease, and the inquiry will be rapidly dismissed. Being seated in the upper portion of the tube, with much of the physiognomy of protracted gastritis, it has still some peculiarities. Thus the uneasiness or pain from food is seldom felt for several hours, or till chyme has passed into the duodenum, when coming into contact with its sensible surface, sometimes vomitings with cramps ensue. Generally, also, the more inveterate attacks are marked by constipation or laxity alternately of the bowels—a saturnine complexion—still oftener by a dusky reddish or really jaundiced hue, with manifestations of hepatic derangement, to which may be added irregularities of the circulation, and, above all, palpitations of the heart.

But other of the small intestines do not escape, and the ileum is most apt to suffer, presenting sometimes its own peculiar phenomena, though oftener a compound of the symptoms of duodinitis and of those of inflammation of the large bowels. Characterised as the latter is usually, by vitiated, alvine and urinary discharges, with more or less tormina and tenesmus, it sometimes, though rarely, exists independently of these affections, or they are so slight as not to attract attention.

It is, on the whole, very difficult, at all times, to distinguish similar states of the two great divisions of the tube, or even the lesions of the separate portions of each, so analogous are the individual symptoms, and so blended do they become very frequently in the chronic forms of the disease. The position and kind of pain or tenderness, the appearance of the stools, and the difference in colour and state of the skin are entitled perhaps to most confidence. What these are, when the superior part of the tube is concerned, has been told, and I will, for the present, only mention, that, in the inferior portion, the suffering corresponds to the situation of the intestine, that there is more or less of diarrhœa, indicative of defective fæcation, and that the tegumentary tissue is singularly dry, rough, and furrowed, and of a dusky or clayey or pallid colour.

Considerable obscurity also may arise from the resemblance of the lesions of the neighbouring organs of the intestinal tube, the pancreas, the spleen, and especially the liver. As to the latter, however, we have to direct our decision, in addition to the position of the pain, the peculiarity of the stools. What is the nature of these in the hepatic disorders, I need not say. That they vary from those in the purely intestinal disturbances is sufficiently known, though, perhaps, not the degree of difference when the colon especially is deeply affected. There is, under such circumstances, a total absence or great deficiency of real fæcal matter. To the colon belongs the faculty of fæcation. As soon as the caput mortuum of chyme escapes from the cœcum, it is naturally acted upon, and

fæces are the product. But this power being lost, or materially impaired, then, very different are the appearance and condition of the alvine discharges, consisting ordinarily of offensive chymous or such like matters, with an occasional mixture of scybalæ, or small portions of less perfect fæces, elaborated in some healthy portion of the colon.

Enteralgia, however, which is incident to every portion of the intestines when fully developed, has so many of the features of chronic enteritis, that it is very apt to be mistaken for it. As a *neuralgia*, having hereafter more formally to dispose of it, I shall now only remark, that, in the outline, it is characterised very much as is gastralgia, and that as the latter is distinguished from inflammation of the stomach, so may the former be from that of the bowels.

Chronic enteritis is usually very hard of cure in an advanced stage. That of the duodenum is probably rendered so by the implication of the stomach or liver, and perhaps the pancreas, with which organs it is directly associated—and of the ilium, from the extraordinary proneness of that intestine to rapid and extensive ulceration. Nevertheless, in an attack, not so inveterate, whatever may be its location, we may hope to succeed in overcoming it, and occasionally in states of lengthened continuance. Even ulcers, when not large, are sometimes healed.

Less now need be said of the morbid anatomy of this affection, having presently, under other heads, to notice some of the most interesting parts of it. The phenomena, in its milder shapes, in the outline are very like those of the acute disease. Much the same changes does the duodenum undergo as the stomach under alike circumstances, such as increased vascularity and floridness, limited to points, or more diffused—or it may present all those shades of red, or slate, or brown, or livid hues formerly mentioned. Either softening or hardening, thickening or attenuation of texture occurs, with, however, seldom ulceration. But denudations of the mucous coat are not unfrequently detected, and also diverse lesions of the adjacent viscera, the pancreas, the liver, &c.

Little has been observed as to the jejunum. But nearly in every case of any severity and duration, with several of the appearances first noticed, the ilium is found replete with ulcers, sometimes very minute, and on other occasions of considerable extent, or at least some one or more of them. They are mostly follicular and of the aggregated glands.

To the whole of the small bowels is incident contraction of their calibre, in some cases amounting to an almost obliteration of it, especially about the ileo-cœcal valve, arising from thickening of the tissues. Three instances of it I have seen myself, one in consultation with Dr. Jackson, and several others are reported of the same kind.

The principal difference observable in the large intestines, is, perhaps, the greater tendency to destructive organic lesions. Though less liable to ulceration, when it does happen, it is more apt to spread from its membranous and not follicular nature. It is here, moreover, that we oftener detect inordinate thickening, and induration of tissue, or the reverse, ramollescence of it, scirrhosity and open cancer, luxurious vegetations, fungoid growths, strictures, hæmorrhoidal degenerations, &c.

It would occupy more space than I can well appropriate to the subject to describe these several lesions,—a part of them too has been erected into distinct diseases, claiming a separate consideration, and on some of them I have already commented. But so much interest is at present

attached to ulceration of the bowels, that I cannot altogether pretermit it. This, it appears, may occur in the follicles, the isolated or aggregated, or in the tissues themselves, solitary or in immense numbers, even to the complete "riddling of the bowels." Follicular ulceration commences with tumidity, and sanguineous engorgement of the gland—so that it becomes considerably enlarged and prominent, which state it gradually loses, and is indented, resembling the flattened pustule, or rather vesicle of small-pox. Now ulceration begins, by which the whole substance is progressively removed, and where adjacent glands are similarly affected and matured, a confluence takes place, and the lesion is greatly increased in some instances.

In different modes and degrees the surrounding tissues are here implicated. When those clusters of glands which have received the name of Peyer, are the seat of ulceration, it is ushered in very much as in the preceding case. There is the same swelling and prominency, only that it presents large patches on whose surface slight ulcers may at first be perceived widely separated, which rapidly augment, run into each other, deepen, and prove very destructive.

Of membranous ulceration, the antecedent condition may be that of red spots, highly injected, or of more diffused redness and turgidity, or ramollescence. Its primary appearance is sometimes that of such extreme superficiality, as to seem to be mere excoriations or erosions. This, however, oftener happens in acute attacks. Nearly always, we find in chronic cases, lesions of this kind bearing a similitude to the common ulcer of the stomach, formerly noticed. Like it, there is a perfect solution of continuity, the various coats of the bowels being successively destroyed—the excavation becoming deeper and deeper, till, in some instances, the whole are absorbed, and a perforation takes place. These ulcers are of diverse sizes, figures, and numbers. They are often not larger than the smallest venereal chancres, sometimes so small as to be even invisible to the naked eye, and I have seen them of the dimensions of several inches, of every shape, and may be solitary or actually innumerable. As they are large in size, so do they usually less abound in numbers. More common, as is supposed to the colon, the cœcum is not exempt from them. I have seen two instances which were treated as abscesses of the right iliac fossa, where the pus evidently came from large ulcerous openings of the gut into that cavity—and a third in which the communication seemed to have been formed by an antecedent abscess externally to the cæcum.

The preceding ulcers of the several varieties have their origin in the mucous membrane. But on some occasions it is not so. The deposit of tuberculous matter may be in the subcellular membrane, which, by irritating the mucous tissue, shall excite inflammation eventuating in ulceration. As to scirrhosity and open cancer, I refer to the account previously given of these affections.

Of its pathology, having nothing more to say, I shall proceed, with a single remark to the treatment of the disease. It is very curious, that though the mucous membrane of the alimentary canal, and that of the pulmonary organs are of essentially the same constitution, there is a most material difference in their liability to the ulcerative process—it occurring very often in the one, and very seldom in the other tissue. No satisfactory explanation of the fact, so far as I am aware, has hitherto been given, and I have only to offer, as a mere conjecture, that the difference is mainly

owing to the greater annoyances and irritations to which the stomach and bowels are exposed from food, drink, and medicines.

Discarding, in the management of these cases, all stimulants and tonics, as in the early stage of the gastric lesions, we rely chiefly on general and topical bleeding, counter-irritation, with the use of laxatives or enemata, so far as to obviate constipation. Conquering the phlegmasia, then to relieve irritation, and revive healthy secretion, a combination of the blue pill, opium, or henbane and ipecacuanha, may be directed.

Lesions of ulceration, or indeed any other essential organic change existing, little can be effected. Yet inasmuch as the first, at least, when slight, have been known to heal spontaneously or otherwise, by the unerring test of cicatrices, some encouragement is afforded to endeavour a cure. From their supposed vulnerary properties, the balsams have been chiefly confided in, and lately the sulphate of copper, the nitrate of silver, the strichnine, and many other articles, which I believe to be useless.

It being impossible to determine the precise nature and condition of these numerous lesions, I have deemed it best to manage them, without any very studious regard to special remedies, on general principles, taking care to regulate the regimen, so that it should not militate against the natural curative process, for the details of which plan I must refer to what was formerly delivered in relation to the affections of the stomach. Meaning hereafter to treat of the chronic intestinal fluxes, I shall postpone to that occasion the remarks which I should otherwise had to have made on these affections, when assuming such a character.

Duodenal Dyspepsia.—Next then, I am to advert to another chronic condition of the bowels, which may be properly viewed as an affection of that portion of the digestive operations performed in the intestinal tube.

Between gastric and intestinal dyspepsia, though a distinction was made by Hippocrates, the early Latin, and some of the modern authorities, as Hoffman, Pinel, and several others, it is said to have been first well described still more recently by a writer of the name of Yeates, in an essay contained in the fourth volume of the Medical Transactions of London, which has never reached me, having only seen a very brief review of the paper in a foreign journal. Considering how much of this function is carried on in the duodenum, by the pancreatic and hepatic fluids especially, and that it is intimately associated with the most important organs by the par vagum, and great sympathetic nerves, through the medium of the semilunar ganglion, we can scarcely hesitate to admit that its morbid states materially affect the assimilative processes, as well as that the former must be productive of a variety of secondary disturbances. To this intestine very great importance was attached in former times, so much so, indeed, as to be called a *second stomach*, and I am much inclined to believe that it exercises scarcely less influence than that viscus over the economy.

In the case which I am now to sketch, that of duodenal indigestion, the appetite declines, or becomes capricious, though sometimes is even voracious—the food oppresses, flatulence is very troublesome, much puffiness of the epigastrium exists, with occasional cramps, apparently of the duodenum. Fulness, distension, weight, or dull ache in the right hypochondrium, and across the loins, or between the shoulders, or down the arms, with numbness, or, as sometimes happens, along the lower extremities, prevails, with torpid bowels, light coloured stools, pellucid, or dark urine,

and at other times depositing a pink, or lateritious, or white sediment, as thick as "gruel and water."

The tongue is coated with yellowish or brownish fur towards the root and centre. There is occasional giddiness, violent headache, occipital, or in the crown of the head and disorder of vision. Fever seldom is observed, though irregular chills may occur with cold hands and feet. The pulse is usually a little accelerated, sometimes, however, preternaturally slow, hobbling, or intermitting, and palpitation of the heart, and diverse nervous affections are very common. Dyspnœa, with occasionally a harassing cough, increases the inquietude of the nights, and ultimately an icterose or leaden tinge of the skin, with extreme despondency and general wretchedness, take place.

The etiology of this disease is the same as that of gastric dyspepsia, with the exception that it is perhaps more directly occasioned by deficiency or vitiation of the biliary and pancreatic secretions, rendering them unfit to perform efficiently their offices. But it is also ascribable, in some instances, to the fault of the stomach, it permitting ingesta to pass into the duodenum, not adequately acted on, or wrought into chyme.

Of the cases with which it may be confounded, there are dyspepsia of the stomach, some of the lesions of the colon, and several of the hepatic derangements. Exceedingly difficult is it sometimes to distinguish it from the first of these, owing mainly to the two cases becoming in a great degree blended, especially in the advanced stages. Gastric disorder, however, of this kind, may generally be discriminated. The oppression from eating, which in it is almost immediate, is postponed for two or more hours in the duodenal attacks. There is in the former comparatively seldom any intumescence or puffiness of the epigastrium, which, when it does take place, is towards the left side, and is relieved by eructations of wind, or vomiting of some acrid fluid. The puffiness, on the contrary, is nearly constant in the latter, and more on the right side, and the gas having difficulty in escaping by regurgitation through the pyloric orifice, belchings, or sour eructations, hardly ever occur. Nor does vomiting, or even nausea. By some of the late writers, the further peculiarity has been noticed of the duodenal headache being nearly always attended by brilliant ocular spectra, which, however, I have never remarked. These symptoms may serve in part also to distinguish it from chronically inflamed, or a dyspeptic state of the colon. But the peculiarity of the stools in the latter are still more decisive.

In regard to the hepatic lesions it may be stated generally, that, where the duodenum is exclusively the seat of the disease, by pressure on the region of the liver, no uneasiness will be complained of: whereas, if it be made by the introduction of the fingers under the ribs, the palm of the hand, at the same time, resting flat on the abdomen, considerable pain is expressed. But what is still more significant, "deep seated pain is pretty uniformly felt in the course of the duodenum, under the seventh or eighth rib, stretching towards the right hypochondrium and to the kidney, and again appearing as if in the loins." It is remarked by a late writer, that so fixed is this pain, that a patient of intelligence will trace it with anatomical precision throughout its extent. Be this as it may, of which, however, I am distrustful, these cases prove for the most part exceedingly ambiguous, and we can only arrive at a satisfactory conclusion, by a faithful study and comparison of symptoms, with the consideration of every

other circumstance, calculated to dispel the obscurity in which they are enveloped.

Of the post-mortem appearances I know nothing, never having seen a case opened, or met with any report on the subject. But it is presumable that they are the same as those in gastric dyspepsia, and that the pathology of the two affections is also essentially similar. The chief difference consists in this, that, though it does proceed as in the case of the stomach from deficient innervation, by which the contractility of the bowels is impaired, it is probably as frequently to be referred to some aberration in the hepatic or pancreatic liquors, or to the transmission from the stomach of imperfect chyme. The mode in which the latter operates to such an effect is readily to be conceived. Habituated only to this bland pultaceous mass, whenever it is crude or not thoroughly concocted, it proves to the duodenum an extraneous irritant, which it has little power to dispose of, and suffers from it accordingly.

No inconsiderable portion of the management of gastric dyspepsia is as pertinent to this affection, and, indeed, in one form of the latter, where it proceeds from disorder of the stomach itself, permitting imperfectly digested matter to pass, it is precisely similar.

Not less here are local bleedings, counter stimulant applications, and finally tonics, in some circumstances, the most efficient means of cure. The chief difference regards the pathological states peculiar to the duodenum. Thus, where the secretions into it are defective, the organs whence they are derived, must be rectified, and these are the occasions probably in which such decisive benefit occurs from the alterative mercurial practice. Large accumulations taking place in the intestine, from any cause, infinite relief is afforded, by moving away the oppressive load by purging. Certain articles are thought to be especially adapted to this purpose, among which are small doses of the sulphate of soda in a weak infusion of gentian or quassia, or the same bitters in senna tea, or a solution of the sulphate of potash in an infusion of quassia, or the vinous tincture of colchicum, where much duodenal irritation prevails. But the *dinner-pill* I have commonly found preferable to every thing else, and this, aided by a duly regulated diet of mild articles, in moderate portions, and of easy digestion, with exercise, will generally effect a cure.

An allusion has been made to a condition of the colon in which a part of the digestive process is performed. No doubt, if fæcation may be so deemed, that such is the fact. But the cœcum is also concerned in the operation, it being the receptacle into which the contents of the ileum are poured and detained, apparently to undergo certain changes, preparatory to the commencement of fæcation. Looking at the cœcum, we shall find much in its structure and economy to sustain this view. More than any other portion of the intestinal tube, does it resemble the stomach in figure and endowments, particularly that of the ruminating animals. It abounds with glands, which secrete an acid, albuminous fluid, having very considerable solvent properties, and its contents being propelled in opposition to gravity, these, among other circumstances, seem very clearly to indicate a design for their further elaboration. The contents are usually a soft pultaceous mass, of a dark or yellowish hue, differing both from those of the ileum and colon, and hence it appears, that a material change is wrought in the cœcum on the alimentary mass it receives, fitting it to enter the subsequent bowel for a conversion into fæces. Granting this

however, it still remains to inquire, whether we can with certainty at all times discriminate the two affections, and, were it possible to do it, would the treatment be so influenced so as to demand a separate consideration. Doubting it, I shall unite the two lesions, as well in the history as management of them, occasionally, however, noticing some of their individualities.

Among the most conspicuous of the symptoms of this condition, is much distension and puffiness in the arch of the colon, sometimes, however, restricted to the right iliac region, and of a more round, protuberant, and immovable or incompressible character, the cœcum then being probably engaged. Constipation is common, with borborygmi of extraordinary loudness, often induced by motion, and nearly always by pressure. The stools when procured, vary however, sometimes, exhibiting a greasy aspect, and here again the cœcum may be suspected of being chiefly in fault, as it alone has those sebaceous follicles, by which such oily secretions are afforded. Decided fever, or even vascular irritation, is rarely to be remarked, though the tongue is heavily coated, the breath offensive, and anorexia, hebetude of mind, lowness of spirits, and an indescribable wretchedness of feeling, uniformly attend, with, in the advanced stage, especially where the infarction of the bowel is considerable, pains in the back and loins, extending to the thigh, retraction of the testicle, strangury, hæmorrhois, and œdema of the lower extremities, owing to pressure on the nerves and blood vessels, in all which respects it is peculiar, or at least does not correspond to other lesions of the bowel.

The causes of this affection, so far as I have been able to determine, are essentially the same as disorder of the other parts of the digestive function. Every case of it which has come under my notice, except one, was in persons of impaired constitutions, from excess in eating and drinking, or the inordinate use of tobacco or opium, or from extreme indolence, or an unhappy state of mind long continued.

We have seen how analogous it is in some of its features to chronic colitis. But it differs from it strikingly, by the absence of inflammatory signs, and in the prevalence of constipation, and not the opposite state of the bowels. Equally may it be distinguished from the dyspepsia of the stomach and duodenum. Not to repeat what has been so recently said of its prominent indications, I have only to observe, that with few of these, the uneasiness after eating seldom comes on, and perhaps never, unless the bowel be previously loaded, or any exasperation takes place, sooner than three or four hours—that pain is apt to be experienced when the bowels are opened, and that the stools, though betraying a defective digestion, not often denote any want of bile.

Generally the disease is cured, or at least I have never failed to do so, where I had an entire control of the management of it. But like all similar conditions, it usually proves obstinate and discouraging, and from the want of perseverance on the part of the patient, our efforts are frequently baffled or defeated.

Its anatomical characters are not determined. The recent attacks of it, perhaps, have no appreciable ones, and the more inveterate I suspect would betray in some instances considerable organic changes, constituting sometimes mechanical obstructions to the passage of the contents of the bowels.

From its causes, its symptoms, and its probable lesions, I am inclined to believe, that in a very large proportion of cases, the affection is merely

a defect of innervation, creative of an enfeebled state of the peristaltic power, and that even the most chronic and intractable shapes of it, have had a similar origin, the injuries to structure which may exist, being secondary, and consequential.

The treatment of this disease is simple. Let the bowels be kept open by the occasional use of rhubarb chiefly, apply frictions to the abdomen twice a day, wearing a Russian belt or flannel roller in the intervals around it, and strictly regulate the diet, the best articles of food being such as afford much nutriment in a small compass, so as to prevent the formation of any bulk of fæces, enjoining also habitual exercise. But these means failing, it will be proper to resort to dry cupping, sinapisms, or blisters, or the whole successively, to the spine, or abdomen, or both, to a course of mercury, cautiously conducted, and finally to those mineral springs which I have recommended in gastric dyspepsia, they being not less serviceable in similar states of the bowels.

It were out of place here to speak of the management of the neuralgic lesions of the bowels to which I have referred, and I shall therefore decline touching the subject. My next duty is to consider the preceding diseases *in extenso*, by which a fuller illustration will be given to some of the views contained in the general summary of them which is now completed.

BIOGRAPHY.

ART. IX. *Biographical Sketch of the Professional Career of Joseph Glover, M. D., of Charleston, S. C., with an account of the more important cases which occurred in his practice and of the principal operations performed by him.* By JOHN BELLINGER, M. D., Chairman, J. C. WHITRIDGE, M. D., and T. Y. PORCHER, M. D., a Committee of the Medical Society of South Carolina, appointed for that purpose. [Published by request of the Society.]

THE committee who were appointed to report upon that part of Dr. Joseph Glover's Biography which relates to his connections with this Society, and to bring to your notice such cases which occurred in his practice, as might interest the profession generally, beg leave to state, that, having examined the Records of the Society, Dr. Glover's Note Book, and other sources of information, they have found abundant materials for their purpose. In using these materials, they have aimed to be concise.

The committee have been gratified in discovering that, from the commencement of Dr. Glover's career, success and distinction waited on his efforts. As a candidate for the Medical Diploma of the University of Pennsylvania, he submitted to the Provost and Faculty a Thesis on DIGESTION, which was published among Dr. Caldwell's *Selected Theses*. It is entitled to a full share of the encomium with which the editor introduces the *second volume* of that collection to the Medical public; *i. e.* that those essays, "considered as separate specimens of intellect and investigation, do great credit to the individual writers; and, taken together, constitute a monument peculiarly honourable to the Medical School of Philadelphia." He graduated in 1800, and, in September of that year, was elected a member of this Association; the following enumeration embraces the most important circumstances connected with his membership. (As most of these facts relate to matters of local interest, the register is omitted.) Two or three of these subjects require a more particular notice. One of the objects contemplated by the founders of the Medical Society of this city was a Dispensary—an institution for furnishing medicines and medical attendance for the poor. A plan of such a charity was drafted contemporaneously with the Constitution of the Association, an appropriate address to the citizens was prepared and published, and an anxious effort made to accomplish their benevolent designs. Notwithstanding the failure of this attempt—for it did fail—the society renewed their exertions in the year 1801; a committee, of which Dr. Glover was a member, was appointed to organize the plan of a Dispensary. A report from them was presented and circulated among the members, and, having been discussed and amended, was transmitted with a suitable explanation to the city council; which body, in consequence of the strong recommendations of the Medical Society, enacted an ordinance founding a Dispensary, and authorizing

the society to nominate physicians and surgeons to the same. The election of the trustees, without whom the next steps could not be taken, was however postponed by the council, until the society, impatient at the delay which had exceeded six months, again urged the city authorities to proceed. Council then elected thirteen trustees, and communicated with the society, who immediately organized a part of their members into a body of attending physicians, and the plan was carried into execution. The medical gentlemen, who volunteered to serve, attended monthly in rotation; some of the senior members acting as a corps of consulting physicians. This system of attendance was kept up for sixteen years. Dr. Glover was one of the number who offered their services gratuitously to the poor; and, in 1805, received in common with his brother practitioners a vote of thanks from the trustees "for their diligent, skilful and humane attention," rendered "without any pecuniary compensation." In 1810, the benevolent Mr. Alexander Shirras endowed the institution by devising several houses and lots, to the Intendant of the city, to the President of St. Andrew's Society, and to the President of the Medical Society, in trust for the benefit of the sick poor. In the preamble to his will, he declares that he was actuated by a conviction, "That the Dispensary established in this city had been of great benefit to the poor and indigent inhabitants, as well as to strangers, when afflicted with sickness," and, moreover, by a desire "to mitigate the sufferings of the distressed, ease the inhabitants, and assist the medical gentlemen in their humane intentions." In honour of this donation, the city council, by an ordinance ratified in November, 1813, established a Dispensary to be known and distinguished as 'The Shirras Dispensary; the services of the physicians were continued as though no change had taken place in the name or circumstances of the institution. In the year 1818, in consequence of rumors of dissatisfaction on the part of the patients, the Medical Society appointed a committee of inquiry, who, after an investigation of the causes of discontent, recommended an alteration of the system of attendance; to which, as thus conducted, several serious inconveniences attached. The principal of these were, the delay in finding the physician for the month, owing to ignorance of his residence; he being obliged, in some cases, to send to a great distance for medicines; the detriment arising from the frequent change of practice in chronic cases; the reluctance of females to communicate their symptoms to different individuals. For such reasons the society proposed, that a single physician should be elected to attend the patients of the Dispensary, and that he should be allowed a salary sufficient to compensate him for devoting the chief part of his time to their wants. The advice was acted on, and the happiest results have been obtained. The office has always been esteemed honourable and desirable, and excellent medical talent has been ever at the command of the trustees.* The committee conclude their remarks on this topic, by noticing an inaccuracy of the late honourable intendant, who, in a "Report, containing a Review of the proceedings of the City Authorities," mentions the Shirras Dispensary, as "a charity established by the late Mr. Shirras, who placed it under the control of the city council, for the benefit of the sick poor of the city." *Reddite quæ sunt Cæsaris Cæsari.* We cheerfully concur in honouring the memory of Mr. Shirras, yet we expect that justice shall be rendered to the Medical Society, for

* At present two physicians are employed.

they first perceived the want of such an institution, framed a plan for its organization, and, having in vain entreated the co-operation of their fellow-citizens, persevered in urging the measure upon an apathetic council, and finally carried it into successful operation.*

The next important item of public business with which Dr. Glover was concerned, was the preparation of a Report upon the causes of our "Endemial Causus," the yellow fever. From the formation of the Medical Society, it has been usual for the civil authorities to request advice upon matters relating to hygiene and medical police. In the year 1795, an able communication was made to the city council, in reference to the general causes of disease; and sundry very useful measures suggested for the preservation of the general health. One of these was, that a number of citizens should be appointed to visit and inspect premises, and be empowered to cause the correction of nuisances. Council immediately acted on the recommendation, and thus was laid the foundation of the Board of Health. It was also advised, that trees should be planted in the streets, and *that a piece of ground should be purchased without the city, as a public burial place.* Many other serviceable hints were given in this Report, which, by order of council, was printed in the daily papers. In 1799, in reply to an inquiry of the governor of the state, the society referred to their previous report, and in addition objected to the "filling of low lots, and the extension of streets, by means of putrifying materials;" and proposed the introduction of pure water from the country "as conducive to health, when used in drinking and cooking; and as serviceable for the extinguishment of fires." In 1808, a committee, of which Dr. Glover was chairman, prepared that (among ourselves) memorable essay upon the causes of fever; which, having been passed through the crucible of not fewer than five formal discussions, was ultimately modified, so as to suit as an answer to the inquiry of the Board of Health, respecting the means of preventing the recurrences of that terrible visitant, the yellow fever. This Report enters minutely into the subject of the local and physical causes of disease in a large city. It treats of the removal and destruction of offals; of the attention necessary to be paid to the state of docks, wharves, cellars, stores, and holds of vessels; of the exposure of decaying animal and vegetable substances; of burial-grounds among the habitations of the living; of the importance of irrigation, and of encouraging a luxuriant growth of trees; of the proper time for cleaning out the subterraneous drains; and of the materials for filling low places. It was regarded as so complete, that at two subsequent periods, when advice was asked by the city council and Board of Health, the society referred them to this paper; on the last occasion remarking, that it "affords a full and complete summary of what, upon mature investigation, appears the best calculated to preserve to us the blessing of health." We do not hesitate to declare, that it deserves to be kept perpetually in print by the municipal authorities, as a rule for the proceedings of the public officers and citizens generally, in relation to medical police regulations. It is surprising how frequent amongst us are infringements of hygienic principles, notwithstanding the excellent advice, requested or proffered, which this society has repeatedly

* "Three institutions emanated from the Medical Society, of great public utility, the Humane Society, the Charleston Dispensary, and the Botanic Garden."—*Ramsay's South Carolina*, vol. ii, page 106.

given. To show how little our recommendations have been remembered or regarded, we will cite two instances. Among the suggestions made to the city council by the Medical Society in 1795, was, that "trees should be planted before the houses of citizens:" and, in Dr. Glover's Report, in 1808, the advantages to health, of a luxuriant growth of trees were pointed out; and the chemical changes produced in the atmosphere by animal and vegetable respiration explained. The commentary upon these monitions is the thoughtless destruction, within a few years past, of the trees which grew in the most populous parts of the city.* Another suggestion, emanating from the Medical Society, has lately been the subject of much discussion, both in print and in conversation: we allude to the proposed prohibition of interments in the city, and the establishment of a cemetery beyond the bounds. In 1795, the Medical Society pointed out both the evil and its remedy to council; in 1799, repeated the advice to the governor; in 1808, urged the proposition upon the Board of Health, and instructed a committee to memorialize the state legislature on the subject, and to pray that body to interdict the practice of interment in the city—in 1810, renewed the suggestion to council; and, in 1815, reiterated the recommendation to the Board of Health. Yet, in 1838, this identical measure is proposed by the commissioners of the "temporary hospital for the sick poor;" and appears to be regarded by most persons, as indeed it is spoken of by the mayor, in his report upon the subject, as a NOVELTY! Again, we exclaim, *reddite omnibus debita—cui honorem, honorem.*

Eminent as several of the medical faculty of this city have been as physicians, it is believed that of those who entered the profession preceding Dr. Glover, no one had devoted much attention to surgery: that brilliant department of our science was comparatively neglected. He commenced practice, therefore, at a juncture favourable for rapid success. Frequent opportunities occurred for the exhibition of his judgment, boldness, and address; and in a few years his reputation as a surgeon was established. One of the first capital operations which he performed, was the rare one, of excising part of the spleen. The patient, a negro belonging to Major Pinckney, was stabbed with a knife on the 12th of August, 1801, at Moultrieville. The weapon penetrated obliquely the left hypochondriac region, making a wound of four or five inches in length; the cartilage of one or two of the false ribs was divided; and some of the omentum, together with a considerable portion of the spleen protruded. Surgical assistance could not be obtained—the next morning he was brought to the city, and at 11 o'clock A. M. was visited by Drs. Matthew Irvine and Joseph Glover. He had lost much blood. The protruded parts presented so gangrenous an aspect that their removal was decided on. A small piece of the omentum, and a large part of the spleen were cut away with the scalpel; a branch of the splenic artery was secured with a needle and ligature—the remaining parts having been properly cleansed, were returned into the abdominal cavity. The wound was closed with interrupted suture, which were secured by the necessary plasters and bandages. The ligatures separated early; and the whole process of heal-

* "The next best practicable mitigator of heat and corrector of foul air in Charlestown, is trees planted in all the streets which can admit them. . . . . Cities built with marble, if destitute of trees and vegetation, would only afford a miserable residence to splendidly wretched inhabitants."—*Ramsay's So. Ca.*

ing was as rapid as that of a wound in any part of the flesh, similarly neglected at first, would have been. In some of its circumstances this case resembles the one reported by Cheselden (on the authority of Mr. Ferguson) in volume xl of the *Philosophical Transactions*, which, strange to say, has escaped the notice of the very accurate and industrious Hennen, who cites the only three other instances, so far as our research extends, in which the removal of the spleen or a part of it has been accomplished by British surgeons.

Among the earliest of Dr. Glover's cases, were operations upon the eye. For a number of years he almost monopolized the practice of this branch of surgery; and so considerable was his reputation as an oculist, that patients from the interior of our own, and from the neighbouring states, frequently resorted to this city, for the advantage of being treated by him. For cataract, he operated either by extracting or by depressing the lens. Many of his patients were "elderly" persons, and he ascertained and has recorded the ages of a few old persons upon whom he operated with success. As it is uncertain at what age, operations for cataract may not be undergone with a fair prospect of relief, we mention the ages of three of these "very elderly" individuals, *i. e.* 65, 70, and 83 years.

The next important operation he performed was lithotomy. Calculous diseases are so rare in this locality, that to have cut for stone in the bladder constitutes an era in the professional career of any of our surgeons. As late as 1808, only three operations of the kind could "be distinctly and certainly recollected as having been performed" in Charleston. Two of these were *done* by Dr. Turner, of Connecticut; (tradition relates that this distinguished operator visited our city by invitation for the purpose;) the third was by Dr. Glover; and all were successful.* Since that date, six similar and likewise fortunate operations have been performed;† of these, two cases came from abroad. So that, up to the present time, (December, 1840,) only seven operations for stone in the bladder have been performed upon persons who were natives, or who had been for many years residents of Charleston.

Excision of the prolapsed or inverted uterus, although reprobated by Ruysch, has, within the present half century, been in repeated instances safely performed.‡ The committee regret that Dr. Glover's interesting case has been so loosely reported, as to allow of a doubt, whether the tumour excised was a polypus or the uterus itself; of the causes of deficiency in the publication they do not feel at liberity to remark. In addition to the history contained in the fourth volume of the American Medical and Philosophical Register, they have been furnished with notes of the case, taken at the time by Dr. Glover himself. From these it is clear, that all who examined the tumour, both before and after its removal, were convinced of its nature; and the expression of Dr. Baron, as significant of the opinions of all, is preserved—"if this is not an inverted uterus, I have

* Ramsay's South Carolina, vol. ii, p. 94.

† Again by Dr. Glover; once by Drs. B. B. Simons, Geddings, and Bellinger; and twice by Dr. Ogier.

‡ Ruysch relates that he witnessed an operation for the removal of a prolapsed uterus, which caused the death of the patient. He cautions surgeons "ut nunquam tam periculosam, imo detestabilem suscipiant operationem, ne mortem inevitabilem concitent." —*Thesaurus Anatomicus*, vol. viii, No. cii, Not.

never seen one." Of Dr. Baron's competency to judge, the committee deem it superfluous to argue. Dr. Glover also relates, that, in 1834, he had visited his former patient, Mrs. H., whom he found in good health, and that he was assured by her that she had never menstruated since the operation.

The following is a summary of the case. The patient was forty-three years of age, a widow, who had never borne children. For several years she had laboured under menorrhagia, procedentia uteri, and a congested condition of that organ, considered by Dr. Shecut as scirrhous. During one of her attacks of profuse hæmorrhage, the uterus became completely inverted and prolapsed. A consultation was held, at which Drs. David Ramsay and the elder Baron were present; a difference of opinion respecting the propriety of excising the tumour occasioned an adjournment to the next day, when it was determined that this chance of life should be afforded the patient, as reduction, having been perseveringly tried, was found to be impossible, and gangrene, having commenced, was rapidly extending. Dr. Glover immediately applied a ligature upon the neck of the tumour as far within the vagina as was practicable, and with a bistoury cut away the whole protruding mass; the ligature separated in less than forty-eight hours. The tumour presented a very diseased appearance, measured eleven inches in length and eighteen in circumference, and was supposed to be five pounds in weight. The patient rapidly recovered.

Against the opinion that this was an *inverted*, or, as it has sometimes been termed by former obstetrical writers, a *perverted* uterus, it has been urged, that inversion of that viscus can occur only immediately after labour, or after previous distension by a foreign body. This patient having never been pregnant, and, no foreign body having been present, the uterus it is concluded could not have been inverted. However, Boyer* acknowledges that he had held the general opinion respecting the predisposing causes of inversion of the womb, and thought that it could not take place without a previous distension of that organ, until he met the uterus inverted in a woman who had not had a child for fifteen years, and whose uterus did not contain a foreign body. Sabatier† affirms, that it has been proved by many facts, that inversion of the womb may depend upon internal causes, and may happen indifferently to women who have not borne children, as to those who have; among those causes he enumerates hæmorrhages. Mr. Watkinson‡ relates two cases, both of which occurred at a period very distant from labour. "Of the cause and origin of the inversion in one of these cases, I think there can be little doubt; it seems to have been occasioned by the relaxed state of the os uteri, and perhaps of the uterus itself, occasioned by the long protracted hæmorrhage, and to have been excited by the presence of coagula, (which must necessarily have formed during that period,) and along with some of which, it might probably have become inverted." While suggesting these authorities in reply to an objection which they have heard made against the opinion, that the case of Mrs. H. was one of inversion of the womb, the committee readily concede that that opinion is attended with difficulties; and that, if they had been obliged to form a judgment solely upon the published report, they could not have ar-

* Mal. Ch. tom. x, p. 511.
† Med. Op. tom. iii, p. 690.
‡ London Med. and Phys. Journal, vol. vii.

rived at this conclusion. But having respect to the experience and standing of the physicians, who had an opportunity of examining the tumour, both before and after its removal, they deem it reasonable that objections, founded on equivocal grounds, should be abandoned in deference to the character of the witnesses.

Before dismissing this subject, the committee beg the indulgence of the society while commenting upon the injustice with which Mr. Alexander Hunter, who demonstrated the safety of this operation, has been treated by several celebrated English writers. In Duncan's *Annals of Medicine*, for 1797, he published the history of a case of inverted uterus, occurring immediately after parturition; reduction being impossible, the organ was removed with a knife, a ligature having been previously applied. In 1802, Mr. Watkinson related two cases, on one of which he had operated unsuccessfully; he omits to mention Mr. Hunter. But, in 1806, Dr. Joseph Clarke, the distinguished accoucheur of Dublin, published the particulars of a case which occurred three years before. He refers to Mr. Hunter in terms of deserved praise, acknowledging that the operation was undertaken by him in imitation of, and because encouraged by the issue of, Mr. Hunter; who, he remarks, "unaided by consultation, and without encouragement from modern authors, ventured successfully to deprive the female constitution of one of its most important organs." In 1814, Sir C. M. Clarke put forth his work upon the Diseases of Females; in the chapter upon this accident, he cites a case from Paré; and relates one from his own practice, upon which Mr. Chevalier, surgeon to the Westminster General Dispensary had operated. In real or affected ignorance of their existence, he makes no allusion to the cases of either Hunter, Watkinson, or Joseph Clarke; in consequence of which omission, he was addressed by the latter, calling his attention to the case previously published by himself (Joseph Clarke). Sir Charles, in the future editions of his work, corrects his oversight, so far as this particular case was concerned, but still maintains silence respecting the prior ones of Hunter and Watkinson; and completes his inaccuracies by referring to the *Edin. Med. Comm.* for the history of a case by Dr. Alexander Hamilton, upon which, he says, the operation was performed. This, however, is a mistake, as no operation was attempted: the uterus was irreducible, and the patient recovered with the womb remaining completely inverted.

Next in chronological order we have the essay of Mr. Newnham expressly on inversion of the uterus. The committee regret that, notwithstanding very active inquiries made in this, and in the principal northern cities, they have been unable to procure a copy of this work: their strictures upon it are founded on a review of the essay, copied from the *London Medical Repository*. From this it seems that Mr. Newnham infers the feasibility of extirpating the uterus from the fact, that it has been subjected, with impunity, to various kinds and degrees of violence. "The recent accounts from France, of sections of portions of the womb, as well as operations of a more remote period, together with successful instances of the Cæsarean section, and cases of recovery from rupture of the uterus, are cited by our author, for the purpose of proving that this organ may be subjected to considerable violence and irritation, without producing fatal symptoms; and having so far established this assumption by the aid of accredited testimony, he proceeds to its more complete confirmation by

detailing the history of a case in which the uterus was extirpated with complete success."* Mr. N. applied a ligature of very strong silk upon the *perverted* womb: about the 25th day the tumour became detached; the patient recovered, and afterwards acknowledged to an inquisitive visitor that "the privileges of matrimony were as gratifying to her" as at any period of her married life. To prove that the uterus may be extirpated, harmlessly to the patient, it surely was irrelevant as well as unnecessary to adduce instances of resection of its neck, of the Cæsarean incision, or of its rupture: other proofs were not wanting, nor could better be supplied than the public already possessed in the cases of Hunter, of Joseph Clarke, and of Mr. Chevalier. To add another fact, to their previously recorded success, was all that should have been done.

Following Mr. N. comes the popular lecturer on midwifery, Dr. James Blundell.† He taught "that it is now a well-known fact, and it is to Mr. Newnham of Farnham, that we are mainly if not solely indebted for the establishment of this fact in modern practice, that the womb may be extirpated by ligature in the same manner as a polypus. ***** Mr. Chevalier first led the way to this operation." He proceeds to mention two other cases that had been operated upon, one by himself and the other by Mr. Windsor; and sums up his experience by remarking, that these four cases are the only ones of which he has had a "more familiar knowledge."

We may hereafter be silent respecting the claims of American surgeons. What prospect is there that justice will be rendered to them by British authors generally, when we find that distinguished writers skim carelessly over their own literature, and set up or grant titles to originality, wilfully regardless or blameably ignorant of the rights of their own countrymen!

The next operation which we will notice is one towards which the hopes of the profession are at the present time anxiously directed; we allude to puncturing the head for the evacuation of water. This has shared the fate common to all important procedures of surgical practice, having been by some strongly condemned, and by others warmly advocated. As it is now in high repute, and as we conceive that they, by whom in modern times this operation has been performed, have been unjustly slighted by the manner in which Dr. Conquest's cases have been celebrated by a portion of the English medical press; we shall demonstrate that puncturing the head has been repeatedly referred to and practised in the last half century as a remedy for chronic hydrocephalus. We shall make our citations exclusively from British and American publications.

1. In volume xlvii of the *Philosophical Transactions*, for 1751-52, is contained a translation of the case of M. Le Cat, by giving, along with other particulars, a description of the trochar and canula invented by him expressly for this variety of tapping.

2. In 1758, Gooch saw a case upon which "a rash and daring pretender to surgery" was desirous to operate.—*Chirurg. Works*, vol. ii, p. 36.

3. In 1765, the operation was alluded to, and many cautions given respecting its performance by Donald Monro; *Essay on Dropsy*, &c. We quote from the third edition—the first was about ten years prior.

* Newnham's Essay was reviewed in the London Medical Repository for 1818; and this review was copied into the Eclectic Repertory, v. ix, for 1819.

† Lectures in the Lancet for 1828-29.

4. In 1778, Dr. Remmett operated, and thought "that many cures by this operation might be found."—Duncan's *Med. Comment.* vol. vi.

5. In 1785, Joseph Hooper related to the London Medical Society the history of a case, which one of the faculty "had offered to cure by tapping."—*Mem. Med. Soc. of London*, vol. i.

6. In 1818, Dr. Joseph Glover operated: we give this case precedence over Dr. Vose's and Dr. Wetmore's, because it was published before theirs.

7. In this year was published the case of Dr. James Vose: he had operated in 1817.—*Med. Chirurg. Trans.* vol. ix.

8. In 1821, we have an account of Dr. Wetmore's case, operated upon in 1816; and, in the same paper, Mr. Callaway's case is mentioned.—*Am. Med. Rev.* vol. iv, 1821.

9. In 1825, we have the cases of Mr. Syme, (*Ed. Med. and Surg. Journal*, vol. xxiv,) and of Mr. Grey, (*Lond. Med. and Phys. Journal*, for September, 1825.)

10. In 1827, the case of Dr. Lee.—*New York Med. and Phys. Journal*, December, 1827.

11. In April, 1828, Oppenheim's elaborate Essay on Puncture in Hydrocephalus was reviewed in the *Ed. Med. and Surg. Journal.*

We learn from the perusal of those cases: 1. That the operation has been thought adapted to the disease, whether the water be contained in the ventricles or effused within the dura mater. Dr. Lee explicitly recommends its performance in the former contingency; contending that the ventricles being filled, "would only be an additional argument in favour of the operation." As puncturing the ventricles had been heretofore regarded as "impossible," or as "not to be attempted," the committee are disposed to ascribe to Dr. Charles Alfred Lee, of New York, the credit of having first distinctly advised a resort to the puncture even of the ventricles.* Indeed, whenever the head is tapped, it is done with the risk of penetrating those cavities; for it is not possible to decide upon the seat of the effusion in most cases of chronic hydrocephalus. The case operated upon by Le Cat, and others, which it is unnecessary to allege, sustain this remark.

2. That, although various instruments have been and may be employed for the evacuation of the water, "a small trochar and canula" are the most fit for the purpose.

3. That a point about midway of the coronal suture, or, to quote the

* "Neither ought he to attempt the operation when the water is situated in the ventricles, or deep in the substance of the brain. . . . . If the water be seated in the ventricles, or substance of the brain, this operation will be of no service."—Donald Monro's *Essay on Dropsy*, p. 113-114.

In several dissections, Dr. John Fothergill found the same appearances, viz. "a collection of clear, pellucid lymph, amounting in quantity, by appearance, to two, three or four ounces, contained in the ventricle of the brain, under the corpus callosum, from whence it was impossible to discharge it by any medicine or operation hitherto discovered."—*Med. Obs. and Inq.*, vol. iv, p. 42.

"However certain we may be of the cavities of the brain being loaded with an extravasated fluid, and consequently of our knowledge of the disease, we must be content to resign the patient; as any operation to relieve him, by drawing off the water, cannot but be fatal."—Dr. W. Watson, *Med. Obs. and Inq.* vol. iv, p. 87.

When the water of hydrocephalus is contained within the ventricles it "cannot obviously be made the subject of such experiment as that of puncturing the pulpy substance of the brain."—*New York Med. and Phys. Journal*, New Series, vol. iv, 1818; editorial comments.

precise direction of Dr. Lee, "between the frontal and parietal bones, on the lateral part of the head," is the most eligible spot at which to make the puncture.

In addition to the cases which we have cited, a few others are referred to by authors, which (owing to the incompleteness of several of our setts of Journals) the committee have not been able to verify. The instances which we have enumerated are, however, sufficient to prove, that, prior to "the autumn of 1828," the operation of puncturing the membranes, and even the ventricles of the brain, with a small trochar and canula, had been recommended and practised. At that period a new era began, Dr. Conquest commenced to operate. From the fall of 1828, when he "performed his first operation," to the time of making his report to the Lancet in 1837, he had punctured the heads of nineteen hydrocephalic patients, of whom "ten were living when last heard from." He operates "by passing a small and delicately constructed trochar into one of the lateral ventricles, and drawing off so much of the fluid as the powers of the constitution will admit of." He introduces the instrument "in the course of the coronal suture about midway between the crista galli process of the ethmoid bone and the anterior fontanelle." The results of Dr. Conquest's operations seem brilliant; but, reasoning from experience and from pathology, we are convinced that the supposed cures will not be permanent. But, assuming that they shall prove as real as they are astonishing, one thing is manifest, that there is nothing of originality about them—neither in discharging the fluid from the ventricles, nor in the use of the trochar and canula, however "small and delicately constructed," nor in the selection of the spot for puncturing. Yet listen to the following quotations: "The employment of tapping as a remedy in hydrocephalus was *long since suggested*, but it is only *lately* that it has been *attempted*."* "*The most important contribution which has been made for many years to the domain of Medicine, is unquestionably that of Dr. Conquest, relative to the treatment of chronic hydrocephalus by tapping.*"† "This is an important paper, and affords ample testimony of the great value of the practice, *for the introduction of which into medicine we are all so deeply indebted to Dr. Conquest.*‡

The committee must not dismiss this subject without a distinct avowal of what is due to the doctor; that his communication is written "in a modest and philosophical tone," (blemished, however, by a paradoxical compliment intended for some of his medical friends,)§ and that although silent respecting the prior operations of others, he himself has advanced no preposterous claims to originality.

The history of Dr. Glover's case was published in pamphlet form by the Medical Society of South Carolina, in July, 1818. It was reported in the *N. Y Med. and Phys. Journal* of the same year, prefaced by the following editorial remarks: "We are indebted to (that ancient and respect-

* Dr. Russell, Lancet, 1832.

† Editor of the Lancet, 1838.

‡ British and Foreign Medical Review, 1838.

§ "Although *exclusive dependence* has been placed upon the *withdrawal of the fluid, without the auxiliary assistance of any pharmaceutical or other medical means*, yet I consider *much of the success* to be attributable to the *kind and able superintendence* of medical friends."

able institution) the Medical Society of South Carolina, for the publication of this case, one which extends the practical domain of surgery, discloses new physiological phenomena, and withal furnishes us with new and interesting facts respecting a fatal and frequent disease." The case was copied into the *Philad. Journal of Med. and Phys. Sciences* for 1821: it is also noticed in the *Ed. Med. and Surg. Journal* for 1828, in the review of the Essay of Oppenheim, by whom it is cited: it has been quoted at considerable length by Bricheteau in his article on Compression in the cure of Dropsy, in the *Arch. Gén*, for 1832:* and is mentioned by Copland in his *Dict. of Practical Medicine*, now in course of publication.

Although we claim for Dr. Glover the credit of having contributed to revive an operation which had been neglected by British and American surgeons for 40 years (no instance of its performance having been published in the interval between his in 1818, and Dr. Remmett's in 1778,) we desire to be understood as having no faith in its supposed curative influence over hydrocephalus. Our settled opinion is, that the past experience† of the profession will undergo no change in consequence of Dr. Conquest's *ten* cases which "were living when last heard from."

One other of Dr. Glover's cases deserves to be remembered: it is that which he related in the oration delivered in 1809, of a patient whom he treated successfully for ascites, principally by tapping. He regarded paracentesis not merely as a palliative, but as a curative means, and advocated its early and repeated performance. In the instance to which we refer, it was resorted to *fifteen* times.

The committee refrain from enumerating the more common operations performed by Dr. Glover, as, although numerous, they were not attended

* The editor of the *Lancet*, (No. 11, for Dec. 1838,) in refuting Mr. Barnard's supposition that the treatment of chronic hydrocephalus by pressure, originated with himself, refers to the *Observationes Medicæ* of Riverius, to Rosen's work on the Diseases of Children, and to Sir Gilbert Blane's paper in the *London Med. Repository*, as containing notices of this mode of treatment anterior to the time of Barnard's "discovery." In addition to these authorities, he might have instanced D. Monro, who tried "purges, blisters, issues, *bandages*, and other remedies." (*Med. Trans. of Coll. of Phys. of London*, vol. ii) Brecheteau gives Dr. Glover priority over Sir Gilbert Blane, and the contemporary English physicians, in the use of the bandage as applied to the treatment of hydrocephalus: in his hands, as in those of Le Cat (who, "every time that he made the evacuation, bound the head with a strong *capeline*,") the bandage was subservient to the trochar or the lancet.

† "As the assistance of diet and surgery has been found inefficient in this disease, it has been hitherto looked upon as incurable."—*Le Dran.*

"But hitherto, whenever this operation has been performed, the event has been unfortunate, and the patient died soon."—*Monro's Essay.*

"It would be imprudent to seek to remedy it by one of those operative proceedings of which we make use elsewhere: the attempts which have been made have succeeded so badly that it is not allowable to make others."—*Sabatier Med. Op.* v. ii, p. 525.

"There is not a single well established instance of success on record."—*Ed. Med. and Surg. Journal, April* 1828. Before this time, Dr. Vose's case, once regarded as successful, had terminated fatally.

"It has been in several instances performed by my able colleague, Mr. Dendy, at the infirmary for children; but I recollect no case in which it has ultimately succeeded, although the management of the cases could not have been in more experienced hands." —*Copland Dict. of Pract. Med.* vi, p. 682.

Good states, that "the water has also been evacuated in many instances with full success by a lancet:" however, he refers to Dr. Vose's case alone."—*Study of Medicine*, vol. iv, p. 267.

by circumstances sufficiently curious to entitle them to particular notice. They conclude their Report by expressing their belief, that at home he will long be remembered for his zealous promotion of the objects of our association, and for his boldness, dexterity, and success as a surgeon; whilst abroad his fame will rest upon his having fearlessly undertaken, and having skilfully accomplished operations, for the performance of which the records of medicine furnish so few precedents.

JOHN BELLINGER, M. D., Chairman.
J. B. WHITRIDGE, M. D.
F. Y. PORCHER, M. D.

REVIEW.

Article X.—*Statistical Report on the Sickness, Mortality, and Invaliding among the Troops in the West Indies. Prepared from the Records of the Army Medical Department and War-office Returns. Presented to both Houses of Parliament, by command of her Majesty.* London: 1838.

Statistical Reports on the Sickness, Mortality, and Invaliding among the Troops in the United Kingdom, the Mediterranean, and British America. Prepared from the Records of the Army Medical Department and War-office Returns. London: 1839.

In 1816, Sir James M'Grigor, director-general of the medical department of the British army, established a system of returns and reports, which has given birth to documents extending over 160 folio volumes, containing an historical record of the medical transactions of the army. The duty of arranging these materials, and of condensing the statistical results, was entrusted to captain (now major) Alexander M. Tulloch, who was assisted in the preparation of the medical details by Henry Marshall, Esq., deputy inspector-general of hospitals, and by staff assistant-surgeon Balfour. The task was a difficult and laborious one—a labour which has been amply repaid by the interesting and valuable character of the results. The volumes before us are the first fruits of this enterprizing spirit, of which, as they form condensed documentary reports, replete with numerical details, it is no easy matter to furnish an analysis. The later reports "on the sickness, mortality, and invaliding among the troops in Western Africa, St. Helena, the Cape of Good Hope, and the Mauritius," will not now engage our attention.

Much has been said of late of the value of statistics—the numerical method as applied to the sciences. "Statistics," says Professor Guy, "considered as a speculative science, will scarcely suffer by comparison with the most perfect of the mixed mathematical sciences." It is a subject of deep importance to the physiologist and the philanthropist. Numerical analysis applied to governmental objects, soon bestowed the character of a science upon political economy; and its application to the investigation of morbid actions has already proved so successful, that the doctrine of averages has been not unaptly styled the mathematics of medical science. As the experience of the civil practitioner is on too limited a scale, and his observations too immethodical to warrant general conclusions, it is only by extending such observations through a series of years, and over vast masses of individuals, that correct conclusions can be attained, as well as important relations disclosed discoverable in no other way. As a test of the truth of theories, statistical investigations are of vast importance. Could all medical opinions be submitted to the searching ordeal of numbers, the substance of many a ponderous folio might be condensed upon its title-page!

At the same time it must be borne in mind, that figures are not facts—a remark that will find illustration when we come to investigate these statistics in reference to pulmonary diseases. Hence the necessity of ascertaining the correctness of the data represented by numericals. Arithmetical reasoning is of all kinds the most fallacious, for not unfrequently the error in the premises can be detected only by the absurdity of the results. "It is the easiest thing possible," says M'Culloch, "to pile figures on figures, but unless deduced from correct data, they serve only to mislead; and they do this the more easily, that they have a scientific air about them, and that most people shrink from the irksome task of examining whether tabular statements be correct or not. There is nothing in fact of which one should be so skeptical as the greater number of statistical facts and details, or with respect to which a sound and searching criticism is so necessary."

As the troops employed in garrisoning the British possessions in the West Indies form several military commands, the statistical details are investigated in the following order:—

I. *The Windward and Leeward Command.*
II. *The Jamaica Command.*
III. *The Bahamas*, and
IV. *The Honduras Command.*

The *Windward and Leeward Command* embraces various islands and possessions extending from 6° to 17° of north latitude, and from 56° to 63° of west longitude. It includes that portion of the American continent termed British Guiana, with the islands of Trinidad, Tobago, Grenada, St. Vincent's, Barbadoes, St. Lucia, Dominica, Antigua with Montserrat, and St. Kitts with Nevis and Tortola. These islands differ so materially in physical aspect, that any general description would not be sufficiently comprehensive to be applicable to the whole. Thus Antigua and Barbadoes, on the one hand, are comparatively low, barren, and rocky, with a dry climate and equable temperature; and, on the other hand, St. Lucia, Trinidad, Tobago, and Dominica, are mountainous, covered with dense forests, and intersected with deep ravines, in which the rains stagnate among a mass of decaying vegetation, thus creating a damp climate and variable temperature. To the other islands an intermediate character pertains; whilst the coast of British Guiana consists of an immense tract of level country, elevated only a few feet above the level of the sea, and presenting, during the rainy season, an almost endless succession of swamps and marshes. The leading characteristics which distinguish the climate of these regions from that of temperate latitudes are the following:—

"1. The first peculiarity which distinguishes the climate of this command is a high temperature, a necessary consequence of proximity to the equator. The mean height of the thermometer throughout the year, is, however, rather under than above the average of similar latitudes, being only about 80½°. In none of the islands is it above 82°, or under 79°, and any slight difference in this respect results more from their geological features, or extent of cultivation, than the mere difference of latitude; as the mean temperature of British Guiana in latitude 6°, is but 80½°, while that of St. Kitts more than 12° further to the north, is 81°.

"2. The next peculiarity which extends to this, as well as most tropical regions, particularly of insular situation, is great uniformity of temperature. The difference between the highest and the lowest mean range of the thermometer, is, even in the most variable of the islands, only 13°, and in some it is

not more than 4° throughout the year; whereas in Britain, it is, in most years, upwards of 30°.

"3. In this, as well as other tropical climates, there is but little change in the elasticity or pressure of the atmosphere. The extreme range of the barometer is not more than from a quarter to half an inch throughout the year, and it is not materially affected even by hurricanes; whereas, in this country its range is from 2 to 3 inches, and it varies with every slight change of weather.

"4. One of the most marked of the atmospherical peculiarities of these regions, is the large quantity of rain which falls annually, being, on the average, at least three times as much as in Britain—a necessary consequence of rapid evaporation under a tropical sun. The quantity, however, varies materially in the different colonies, according as their surface is mountainous or level, clothed in wood, or cleared and under cultivation. We have, in a subsequent portion of this report, stated the fall of rain in each colony, so far as it has been ascertained by measurement; the average quantity throughout the whole command has been estimated at from 60 to 70 inches annually.

"The rain of these regions is, however, of a very different character from that of Britain, being confined principally to two seasons of the year, termed the spring and autumnal rains, and then falling, not in gentle showers, but in torrents, which, unless in a very dry soil, or where there is free drainage, speedily inundate the surrounding country.

"5. The four seasons of temperate climates, are therefore represented by two wet and two dry seasons; but as the rains follow the course of the sun, it is obvious that the period of their commencement and duration must vary according to the proximity of the settlements to the equator. In Guiana, the most southerly, the spring rains generally extend from December to January, the autumnal from May to August, while in the most northerly of these settlements the former does not commence till April or May, and the latter extends from October to December.

"In many of the islands, particularly the less hilly ones, there is scarcely any deposition of dew, and in the others it is generally scanty, except in densely wooded districts.

"6. In regions exposed to such a high temperature, it is fortunate that the heat of the day is generally modified by a sea breeze, not of that variable character which prevails in temperate climates, but which blows with nearly uniform force, and from one direction, during nine months of the year. It is termed the trade wind, and generally comes from the east and its collateral points, except from August to December, when it veers round, and blows slightly from the south and west, with frequent calms at intervals.

"While this trade wind prevails during the day, a land wind, in all the large and mountainous islands, blows with almost equal regularity at night; for as soon as the sea breeze dies away, the hot and rarified air of the plains, ascending to the mountain tops, is there condensed by the cold, and flows in a steady current towards the ocean, to supply the equilibrium of the atmosphere. In the smaller islands, and those in which there are no mountains, there is either no land wind, or it is very slight. The sea breeze generally sets in between 10 and 11 A. M.; blows with increasing force till 3 P. M., and dies away about sunset, when, after a short interval, the land wind commences, and continues till sunrise.

"In these and some other tropical regions in similar latitudes, hurricanes are occasionally experienced between the month of August and latter end of October; hence denominated the hurricane season. Trinidad, Tobago, and the settlements to the south, have hitherto been exempt from them, but they sometimes fall with dreadful violence on the other islands. Barbadoes, in particular, has suffered very severely from their ravages.

"During the rains, particularly at their commencement and termination, thunder and lightning are very common, but seldom occur at any other period of the year. Unfortunately little has been done to investigate the electrical condition of the atmosphere in these parts of the world, and therefore we can only

estimate the presence of that agency from its visible effects at these periods." p. 4.

The annual mortality among the white troops in this command, during the last twenty years, is 93½ per 1000 of the strength; or, in other words, about an eleventh part of the force died annually. This ratio of mortality, however, is considerably lower than that of the previous fourteen years, terminating with 1816. It was then 138 per 1000. As the mortality among the same class of troops in the United Kingdom, during a long series of years, is only about 15 per 1000, the comparative insalubrity of this climate is shown. It further appears that among every 1000 white troops, there have been annually admitted into hospital 1903, so that, on an average, every man must have been under medical treatment about once in every six months and a half. This proportion is just twice as high as in the United Kingdom. But the difference in the ratio of severity among the cases treated is still greater; for in the West Indies, there is one death in every 24 admissions, whilst on the home station there is only one in every 67 cases.

In the Windward and Leeward command, the class of febrile diseases comprises more than a third of all the admissions, and about a half of all the deaths; and compared with the same diseases among troops in the United Kingdom, the ratio of admissions is ten times, and that of deaths twenty-five times higher. About two-fifths of the fever admissions are intermittents, which seldom prove fatal. In the low marshy settlements of Demerara and Berbice, the annual number of cases is frequently equal to the whole force employed! In other stations, however, they are comparatively rare, and in some almost unknown.

Eruptive fevers are so exceedingly rare in this command that, in the period of 20 years, only 13 have been attacked, and but one died among all the white troops.

The mortality from diseases of the lungs is high. As the Reporter, from his statistical results, arrives at the conclusion that it is "*by no means likely that any beneficial influence can be exerted by climate itself*" in pulmonary affections, this subject will, in the sequel, engage special consideration. In the progress of our review, we will, therefore, make such quotations as will fairly express the views of the Reporter, reserving our remarks to the conclusion. Thus—

"Though the proportion of admissions by this class of diseases is lower than among troops in the United Kingdom, in the proportion of 115 to 148, the ratio of mortality is much higher, as nearly 10½ per thousand of the strength have been cut off annually; whereas in Britain the deaths from the same class of diseases do not average, at the utmost, more than 8½ per 1000. This arises from the greater prevalence of consumption; for, out of an aggregate strength of 86,661, serving in the Windward and Leeward Command, not fewer than 1023 were attacked by that fatal disease, being 12 per 1000 annually, while out of an aggregate strength of 44,611 dragoon guards and dragoons serving in Great Britain, only 286 were attacked, being about 6½ per 1000. Not only is consumption productive of great mortality in this command, but inflammation of the lungs, and chronic catarrh are nearly twice as prevalent and twice as fatal as among troops in Britain, thus showing how little effect a mere increase of temperature has in modifying these diseases."

We would premise here that the Reporter's conclusions, which show "a striking contradiction to the popular idea" in reference to pulmonary

diseases, are founded in error. We will show that not only are the inferences deduced from his numerical results, in many instances, unwarranted; but that a radical error pervades the mode of investigation adopted. We agree with the author that pulmonic lesions, as regards the *annual* ratio, are more prevalent in certain *systems* of climate in southern than in northern latitudes; but when we come to investigate the question in relation to the relative influence of the *seasons*, the general opinions in regard to change of climate in pulmonary affections, maintained since the days of Hippocrates, will be triumphantly established.

Hepatic affections, although by no means so prevalent as in the East Indies, yet are nearly thrice as rife as among the troops in the United Kingdom, and five times more fatal. The general impression is that this class of diseases has an intimate connection with tropical temperature; but, on comparing the average of all the West India commands with the ratios given by England, Canada, the Mediterranean stations, and the United States, it is not found, on making some allowance for the circumstance that the white troops in the West Indies are from northern climes, that this class of diseases is much influenced by temperature.

The class of *Gastric and Intestinal affections*, among the white troops, is a most fertile source of sickness and mortality. The proportion attacked annually is 421 per 1000, whilst in England it is only 95; and in the former, the mortality is 21 per 1000—a ratio forty times as high as among troops at home. The principal source of this mortality is chronic dysentery, one-fifth of the cases proving fatal. Gastritis and enteritis also prove extremely severe in their character, and fatal in their effects.

The *Diseases of the Brain*, under which class are included inflammation, cephalalgia, coup de soleil, hydrocephalus, apoplexy, paralysis, epilepsy, fatuity, mania, and delirium tremens, appear at first sight to be very prevalent and fatal, the ratio of admissions and deaths being four times as high as in Great Britain; but as more than half of these cerebral affections have resulted from *delirium tremens*, it seems that this class of diseases is not very much influenced by high temperature. These results are confirmed by the statistics of the United States' Army, which show that the vice of inebriation may be indulged in our northern states, as contrasted with the southern, with comparative impunity.

Dropsies.—The ratio of admissions and deaths by this class of diseases, which are mostly the sequences of fevers, is very high. Compared with England, it is nearly as eight to one.

In the other classes of diseases, little worthy of remark is presented. A fact deserving of notice is the rarity of admissions under the head of venereal diseases; and this is particularly striking, from the circumstance, that, although the ratio of ulcers on all other parts of the body is nearly thrice as high as in Britain, the average of those on the genitals is eight times lower. As there are no police regulations on this subject in the command, and, as the ratio of venereal cases in the East Indies and the Mauritius is greater even than in England, it follows that this exemption arises from some peculiarity of the climate unfavourable to the existence and propagation of the disease.

Having noticed the more important facts in regard to the white troops in the windward and leeward command, we shall now take a glance at the results furnished by the black troops and pioneers. As we possess no exact statistical records of the mortality of the negroes in their native

country, it is difficult to determine the influence of other climates on their constitutions. So far as statistical inquiries have extended, it seems that in no country does the mortality among the indigenous civil inhabitants, between the ages of 20 and 40, exceed 15 per 1000 annually. Among the corps of the Cape of Good Hope, composed of the aboriginal inhabitants of Southern Africa, it is only 11 per 1000; among the Bengal native troops it is the same; and among those of Madras it does not exceed 13 per 1000. In the West Indies, the mortality of the black troops, who "are for the most part natives of the interior of Africa," is 40 per 1000. The same liability to a high ratio of mortality seems to affect the blacks wherever they may be employed, as in the Mauritius, Ceylon, Gibraltar, and even at Sierra Leone on the sea-coast of their own continent. In Ceylon, they soon become extinct! The constitution of the negro would seem, therefore, to be little fitted to assimilate itself to foreign climates.

The class of febrile diseases which prove, in this command, the fertile source of inefficiency and mortality among the white troops, exerts comparatively little influence upon the blacks. Whilst the annual ratio of mortality per 1000 of the mean strength from this cause is 37 among the whites, it is less than 5 among the blacks. On the other hand, eruptive fevers, especially small-pox, are very fatal to the latter.

Diseases of the lungs are not so prevalent as among the whites; but, owing to the more fatal character of consumption and inflammation of the lungs, are productive of greater mortality. The fatal influence of these affections is apparent in every climate in which they have been employed. In this command, upwards of two-fifths of all the deaths among the negro troops have arisen from this class of diseases.

This class of troops suffer but little from hepatic affections. Gastric and intestinal affections, too, are only about one-third as fatal as among the whites, and about one-fifth as prevalent, but they induce upwards of a sixth of the whole mortality.

In the narrow limits to which our remarks are confined, we can merely direct attention to the more prominent facts. Much less then are we enabled to follow up the details comprising the divisions of this command.

British Guiana is a vast flat, consisting of a deep alluvial soil. The climate is distinguished for its extreme moisture, 157 inches of rain having fallen in a single year. Among the white troops the annual mortality is 84, and among the blacks 41 per 1000. *Trinidad*, in its physical aspects, presents a striking contrast to the low lands of Guiana. Its mountains rise 3000 feet above the sea, broken into the most abrupt forms, and clothed to their summits with majestic forests. Among the white troops the ratio of annual mortality is 106, and among the blacks 40 per 1000. *Tobago* is also of a mountainous character. The average mortality among the white troops is 153, and among the black 34 per 1000 *annually!* Amongst the causes of mortality, fevers stand first; next, gastro-intestinal affections; and, thirdly, pulmonic affections. *Grenada* is a small island with mountains 3000 feet. The mortality among the white troops is 62, and among the black 28. *St. Vincent* is another small island, with a central mountain 4000 feet in height. Among the black troops, the ratio of mortality is 36, and among the white 55. *Barbadoes*, which exhibits little of that exuberant vegetation which characterizes the other islands of this command, rises by a succession of terraces to the height only of 1100 feet. The mortality among the white troops is 58, and among the black

46 per 1000. In *St. Lucia* the ratio of mortality among the troops is as follows:—whites 122 *per mille per annum!* blacks 42 ditto! *Dominica*, which is apparently of volcanic origin, has a bold range of rugged mountains rising to the height of more than 5000 feet intersected by deep ravines. The mortality of the whites is 137, and that of the blacks 40! In *Antigua* and *Monserrat* the ratio of the former is 41, and the latter 29. All these calculations are made on an average of 20 years. The malignant influence exercised by these islands, on European constitutions, is manifested in different forms. Thus Tobago is most remarkable for fevers; Barbadoes for affections of the lungs; Dominica for those of the brain and the bowels; Grenada is most noted for diseases of the liver; and Trinidad for dropsical affections.

The Jamaica Command constitutes the second division of this report. This island is 170 miles in length, by 50 in breadth. A range of mountains from 7000 to 8000 feet in height runs throughout its whole length, forming a complete barrier between the north and the south sides of the island. On approaching from the south, the immense mass of the Blue Mountains bursts at once upon the view—their summits a succession of abrupt precipices—their lower range crowned with wood and sloping down to a plain, from eight to twelve miles in breadth, along the coast, on which the principal towns and largest military stations are situated. On the north side, as the ground rises at once from the sea by a succession of acclivities, separated by wide valleys, there are few plains or level surfaces of any extent. The lower hills, which are conical, are studded with thick groves of the pimento tree; but these features gradually become bolder in their outline until they join the high range in the centre of the island, which are covered with immense forests of cedar. The interior of the island presents the features peculiar to a highland district, in some parts rugged and densely wooded, in others spreading out into a wide expanse of table land or elevated plain.

"As these portions of the island present varieties in physical aspect, so they exhibit a corresponding diversity in climate. On the plains or sea-coast of the south side, the thermometer at noon does not vary more than 8° or 9° throughout the year; its greatest height being about 92°, and its lowest 83°. The mid-day heat on both sides of the island is greatly modified by the influence of the sea-breeze, which generally sets in from the eastward about 8 or 10 o'clock in the morning, increases in force till about 2, and declines with the sun, till, on the approach of evening, it is succeeded by the land wind from the mountains. When these winds become less regular, or altogether fail, as is sometimes the case before the rainy season, the atmosphere is exceedingly oppressive to the feelings, though the thermometer perhaps exhibits but little change in the temperature.

"The quantity of rain which falls throughout the year is about 50 inches, and the seasons may be distinguished as follows. From the middle of December to the middle of April, there is generally clear dry weather, except a few showers at Christmas. During the first three months of this period north winds prevail, with considerable diminution of temperature, the thermometer sometimes sinking so low as 70° in the morning, but by mid-day it generally stands at from 83° to 85°; the sea breezes at this time are weak and irregular. About the middle of April the sea breeze fails altogether, the thermometer rises to about 86° at mid-day, and is seldom below 80° at night; the heat becomes oppressive, the atmosphere cloudy, and a few transient showers begin to usher in the spring rains, which continue with great violence during most part of May, and are generally preceded by heavy storms of thunder and lightning. The

country, it is difficult to determine the influence of other climates on their constitutions. So far as statistical inquiries have extended, it seems that in no country does the mortality among the indigenous civil inhabitants, between the ages of 20 and 40, exceed 15 per 1000 annually. Among the corps of the Cape of Good Hope, composed of the aboriginal inhabitants of Southern Africa, it is only 11 per 1000; among the Bengal native troops it is the same; and among those of Madras it does not exceed 13 per 1000. In the West Indies, the mortality of the black troops, who "are for the most part natives of the interior of Africa," is 40 per 1000. The same liability to a high ratio of mortality seems to affect the blacks wherever they may be employed, as in the Mauritius, Ceylon, Gibraltar, and even at Sierra Leone on the sea-coast of their own continent. In Ceylon, they soon become extinct! The constitution of the negro would seem, therefore, to be little fitted to assimilate itself to foreign climates.

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The Jamaica Command constitutes the second division of this report. This island is 170 miles in length, by 50 in breadth. A range of mountains from 7000 to 8000 feet in height runs throughout its whole length, forming a complete barrier between the north and the south sides of the island. On approaching from the south, the immense mass of the Blue Mountains bursts at once upon the view—their summits a succession of abrupt precipices—their lower range crowned with wood and sloping down to a plain, from eight to twelve miles in breadth, along the coast, on which the principal towns and largest military stations are situated. On the north side, as the ground rises at once from the sea by a succession of acclivities, separated by wide valleys, there are few plains or level surfaces of any extent. The lower hills, which are conical, are studded with thick groves of the pimento tree; but these features gradually become bolder in their outline until they join the high range in the centre of the island, which are covered with immense forests of cedar. The interior of the island presents the features peculiar to a highland district, in some parts rugged and densely wooded, in others spreading out into a wide expanse of table land or elevated plain.

"As these portions of the island present varieties in physical aspect, so they exhibit a corresponding diversity in climate. On the plains or sea-coast of the south side, the thermometer at noon does not vary more than 8° or 9° throughout the year; its greatest height being about 92°, and its lowest 83°. The mid-day heat on both sides of the island is greatly modified by the influence of the sea-breeze, which generally sets in from the eastward about 8 or 10 o'clock in the morning, increases in force till about 2, and declines with the sun, till, on the approach of evening, it is succeeded by the land wind from the mountains. When these winds become less regular, or altogether fail, as is sometimes the case before the rainy season, the atmosphere is exceedingly oppressive to the feelings, though the thermometer perhaps exhibits but little change in the temperature.

"The quantity of rain which falls throughout the year is about 50 inches, and the seasons may be distinguished as follows. From the middle of December to the middle of April, there is generally clear dry weather, except a few showers at Christmas. During the first three months of this period north winds prevail, with considerable diminution of temperature, the thermometer sometimes sinking so low as 70° in the morning, but by mid-day it generally stands at from 83° to 85°; the sea breezes at this time are weak and irregular. About the middle of April the sea breeze fails altogether, the thermometer rises to about 86° at mid-day, and is seldom below 80° at night; the heat becomes oppressive, the atmosphere cloudy, and a few transient showers begin to usher in the spring rains, which continue with great violence during most part of May, and are generally preceded by heavy storms of thunder and lightning. The

weather in June is generally hot and dry, the sky is seldom obscured by a cloud, the thermometer often rises to 92° at noon, the land wind fails, and the nights are consequently oppressive; but the sea breeze is strong, and tends greatly to moderate the intensity of the heat. Very little change is perceptible throughout July or August, but in September there is the same close sultry weather as in April, which continues till the autumnal rains set in, about the middle of October. These are generally preceded by thunder and lightning, though not to so great an extent as in spring, and continue from four to six weeks, during which period the temperature undergoes a reduction of about three or four degrees by day, and six or seven by night.

"From July to October are the hurricane months in this island, but fortunately these phenomena are of rare occurrence.

"The seasons on the north side of the island are somewhat different, the rains being generally a month later in their commencement, and much longer in their duration than on the south side, a greater quantity also falls, and the showers are more equally distributed throughout the year. Owing to the vicinity of the mountains, and there being little extent of level ground, the atmosphere is cooler in winter, and more liable to sudden alternations of temperature." p. 42.

As the elevation of the lands in the interior of the island produces a corresponding modification of temperature, almost every variety of climate is found. At a height of 4200 feet, the range of the thermometer is from 55° to 65°; and in winter, it falls even as low as 44°. Here the vegetation of the tropics gives place to that of temperate regions; and here, while yellow fever cuts off its thousands annually along the coast of the island, a complete immunity from the pestilence exists. It was long since determined by Humboldt that yellow fever is not found above the height of 2500 feet—one of the strongest proofs that the disease is not propagated by contagion, and that it requires a high temperature for its development. In these elevated regions, the inhabitants exhibit that ruddy glow of health which marks the countenance in northern climes, and forms a striking contrast to the pallid and sickly aspect of those that dwell along the coast.

The annual ratio of mortality among the white troops in the Jamaica Command, according to the Medical Returns, is, on an average of 20 years, 121 per 1000; but when we come to include certain omissions, the ratio is as high as 143! As the average mortality during the 13 years preceding 1817, is about the same as since, it seems that the climate has experienced no amelioration. Among the black troops, the mortality is only 30 per 1000.

From *fevers* alone the annual ratio of mortality is among the white troops, 102 *per mille*, whilst among the blacks it is only 8. The fatal bilious remittent fever is much more prevalent in this command than in the Windward and Leeward command. These epidemics spare neither age, sex, nor condition in life. The temperate and the intemperate, the prudent and the thoughtless, fall victims in nearly an equal degree. Their appearance is not confined to any particular season; and all sanatory precautions, save the removal of the troops from the locality, are of no avail in arresting their progress. In regard to *Febris icterodes*, a very arbitrary distinction obtains; for, although hundreds of cases occurred in which patients died of black vomit, yet all, with the exception of 20 cases, are reported under the head of "remittent." The Reporter observes that "unlike the yellow fever of Gibraltar, one attack of the remittent fever of this country secures no immunity from a second." In our own country,

at New Orleans for example, one attack of yellow fever is considered a safeguard against a second.

Eruptive fevers are so rare in this command, that among the white troops in the whole course of 20 years, only seven cases are reported.

Diseases of the *Lungs* are about one-third less prevalent, and one-third less fatal than in the Windward and Leeward command. Upon this subject, we shall make another extract, reserving our comments for a fitting time.

"As an instance how much more prevalent consumption is in that country than in Britain, we may state that of an aggregate strength of 51,567, serving in Jamaica, there have been 661 treated for that disease, being at the rate of 13 per 1000 annually; while out of an aggregate strength of 44,611 dragoon guards and dragoons, serving in the United Kingdom, there have been treated only 286, or between 6 and 7 per 1000 annually, and that, too, though the period over which the latter observations extend, includes two severe epidemics of influenza, which, no doubt, laid the foundation of more cases of this disease than usually occur in this country.

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"The baneful influence of the climate of the West Indies in accelerating the progress of consumption, has been often remarked by the medical authorities; but it does not seem to have occurred to them, nor indeed had they any means of ascertaining, that at least twice as many cases of it originate in that climate as at home, though those catarrhal affections to which they are generally attributed are there comparatively so rare." p. 47.

The ratio of diseases of the *Liver* is only half as high as in the Windward and Leeward command. Considering the high degree of temperature in this island, it will seem strange that the ratio of admissions, compared with troops in Britain, is only as 10 to 8, and the deaths as one to $\frac{4}{10}$ths.

Under the class of the diseases of the *Stomach* and *Bowels*, the ratio of admissions into hospital is only about one-half, and the deaths scarcely one-fourth as high as in the Windward and Leeward command. As dysentery and diarrhœa, in particular, assume a mild and tractable form, the Reporter is disposed, with good reason, to ascribe much to the circumstance that instead of salt meat, much fresh provisions are supplied.

Diseases of the Brain.—If we exclude from this class the admissions and deaths arising from ebriety, the averages are not much higher than in Great Britain.

Did space permit, it would be interesting to follow the Reporter in the details of his investigation of the relative salubrity of the different military stations of this island, the general results of which have just been brought under notice. Whilst the annual mortality of the post of Maroon Town, situated in the interior of the island, and elevated more than 2000 feet above the level of the sea, is only 33 per 1000, at Montego Bay, on the coast, the ratio is as high as 179, and at Savannah la Mar, it is even 200. As many of the deaths at Maroon Town originated from disease contracted at other stations, the actual mortality does not exceed that of the Foot Guards in London. Whilst some of these mountain stations are very salubrious, yellow fever being there unknown, at Montego Bay it sometimes became necessary to withdraw the troops in consequence of there being none left fit for duty. At Up-park Camp, in 1819 and 1822 nearly a half, in 1825 a third, and in 1827 about a fourth of the garrison were swept off. At Spanish Town, "on no less than seven different occasions, between a fourth and a fifth part of the whole force was cut off in the

course of the year, and in 1825, the ratio of mortality amounted even to two-fifths of the strength." At this post, the annual mortality from fevers alone, on an average of 20 years, is 141 per 1000 men.

Bahamas.—This command consists of several hundred islands of various magnitude, extending nearly 600 miles. The most important of the group is New Providence, at which island the troops are principally quartered. The number of white troops is so limited that the Reporter does not make the usual deductions. Among the white troops the annual mortality is 200 per 1000, and among the black it is only 41. Among the former, four-fifths of the deaths arose from fevers, mostly of the remittent type. From this disease, one in 5 of all the white troops attacked died, whilst of the blacks there died only one in 50.

Honduras.—This settlement lies on the southern portion of the North American continent. The annual mortality of the white troops, very few of which were stationed here, is 103 *per mille*, and that of the blacks, 30.

Having completed all the details of the West India commands, the Reporter proceeds to consider several subjects of a general nature. In the section on the number constantly sick in hospital, it is shown that out of every 1000 white troops there are 87 constantly ineffective from sickness in the Windward and Leeward command, and only 63 in Jamaica, notwithstanding the latter is far more unhealthy.

"This peculiarity arises from four-fifths of the mortality in Jamaica being caused by fevers which rapidly terminate either in death or recovery, and only one-fifth from lingering diseases, such as those of the lungs and bowels; whereas in the Windward and Leeward command, scarcely half of the deaths are caused by fever, and almost all the others by diseases which detain the patient long in hospital. From this it will be understood how, during the ravages of epidemic fever, there may be a very great mortality without the hospital being much more crowded than usual."

The section on the influence of age and length of residence on the mortality among troops serving in the West Indies, is very interesting. Instead of the mortality decreasing with advance of age, as has been the general impression, it increases with infinitely greater rapidity than in England. The prevailing idea in regard to the advantages of seasoning or acclimatization, is opposed to numerical results. In Jamaica, for example—a station in which the strength is usually kept up by young recruits, varying from 19 to 21 years of age—the annual ratio of mortality among soldiers between the age of 18 and 25, is 70 per 1000, between 25 and 33, 107, between 33 and 40, 131, and between 40 and 50, 128 per 1000. Now, if the conservative powers of the constitution acquired strength by length of residence in unhealthy climates, the reverse ought to be the case. Similar results have been uniformly observed in all other stations, both in the torrid and the temperate zones.

In the section on the mortality and diseases of the officers serving in the West Indies, it is shown that the proportion, compared with the troops generally, is only about half as high. The only class of diseases by which officers suffer more than privates, is that of the liver. From diseases of the lungs and the bowels, officers enjoy a very marked exemption.

"If one class of men is found to suffer more from diseases of the bowels than another, when there appears nothing in their duty or employment to create such a difference, we are naturally led to inquire into the nature of their diet; and on

ascertaining from the result of 20 years, that in the one command, where, for five days in the week it has consisted of salt provisions, the mortality by that class of diseases has been nine times as high as among the officers, while in the other, where but two days' salt provisions have been issued in the week, the mortality of these two ranks approximates so nearly as to be almost on a par, we are led to the conclusion that this cause is likely to have had some influence on the prevalence and fatal character of these diseases in the Windward and Leeward command." p. 99.

The comparative exemption of officers from diseases of the lungs, is another remarkable result. The mortality from this class of diseases among the troops is 4 or 5 times greater than among the officers—a circumstance the more unaccountable, as recruits undergo a careful examination at their enlistment. As consumption in this class of diseases is the principal source of mortality among the troops, it would seem that their great susceptibility to this malady cannot be ascribed to climate alone. As it has been demonstrated by experiment by Sir James Clark, that innutritious food and confinement in close humid places will develop tubercular affections in animals, the Reporter is led to the inference that a restriction to salt diet and confinement in crowded barrack-rooms, particularly in a tropical climate, may produce on the soldier similar effects—a condition from which the officer is exempt. The difference has been attributed by some to intemperance and exposure to night air; but to this it is replied, on the one hand, that in the East Indies, where the soldier undergoes similar exposure, the mortality is only one-fourth as great; and, on the other hand, that the non-commissioned officers, who are much less addicted to the vice of intemperance than the private soldier, suffer even a greater mortality. Hence it is inferred that the comparative exemption of the officer can be attributed neither to his non-exposure nor superior temperance. But more of this anon.

The sixth and last section contains the deductions from the preceding data. We think the reporter rather unfortunate in his conclusions, which seem to have little practical tendency. He combats the opinion that the diseases which prove so fatal to Europeans in these latitudes, especially fevers, arise from continued exposure to a high temperature. Now who, at the present day, maintains the doctrine that intermittent or remittent fever is ascribable to the agency of mere temperature? If heat alone were sufficient, these diseases would be most prevalent in the deserts of Africa. On the contrary, they are there unknown; but as we approach the Nile, where the air is moist, and the soil abounds in organic remains, they become exceedingly rife and fatal. In like manner, in our southern regions, every white man, Indian, and negro, is aware that whilst he is peculiarly subject to these diseases along the margins of streams, lakes, and marshes, he is exempt in the adjacent sandy pine woods. The British army statistics, however, prove that in proportion as the equatorial regions are approached, do febrile endemics become more prevalent and fatal—a law that is beautifully illustrated by the fact that the "sickly season" in positions north and south of the equator, in consequence of the seasons being reversed, occurs at periods precisely opposite. In the statistics of the United States' army, too, the influence of temperature in the production of intermittents and remittents is clearly demonstrated. In our southern latitudes, the annual ratio is about five-fold greater than in the northern;

and between the low temperature of the first quarter of the year and the exalted temperature of the third, a contrast equally marked is observed.

That "excess of moisture" constitutes the essential cause of the fevers of the West Indies, the reporter regards as an untenable hypothesis.

"If the mortality of the troops depended materially on the influence of moisture, we might expect it to attain its maximum in those stations where the fall of rain was the greatest; whereas, the average mortality of the troops in Jamaica is at least double that which prevails among those in British Guiana, though the quantity of rain which falls in that island is little more than half as great."

We are not aware that febrile epidemics are ascribed to mere moisture. The Reporter does not here distinguish between the moist and the rainy season, nor does he attend to the conditions most favourable to the evolution of miasmata. To submerge completely marshy lands, it is well known, is one of the means of obviating their insalubrity. Animal and vegetable decomposition is regulated by the degree of heat and moisture combined. If moisture is increased until the air is excluded from the vegetable matter, decomposition is suspended; and the same effect is induced if the temperature is reduced to the freezing point, or increased until all moisture is dissipated. In the operation of heat and moisture there is then a wide distinction; for the former acts in proportion to its intensity, whilst the latter may prove unfavourable to the generation of malaria, no less by excess than by deficiency. We do not pretend to define the precise nature of *marsh poison*, but one fact is evident, viz: that a marshy soil, previously submerged, exposed to the action of solar heat, will develope that mysterious agent called *malaria;* and we know from experience that marshy districts in almost all countries are the *foyers* of disease, and that the deltas of large rivers are apt to teem with malarious emanations.

Again, it is alleged that the unhealthy character of these colonies cannot be accounted for by exhalations or emanations from the soil, because while the soil and its physical characters are the same in every year, the sickness and mortality are extremely variable. Now it is vain to argue from the effects of a single cause, when we admit that febrile endemics are produced by a concurrence of causes acting constantly or periodically in certain localities. Indeed the Reporter acknowledges that heat and moisture *conjoined*, although not the primary causes of fever, yet tend to increase its intensity.

These documentary reports contain a great mass of valuable information; and however we may disagree with the compiler in regard to his deductions, the facts themselves will stand unchanged, and these data will continue a source of reference to the medical philosopher when all such crude inferences shall have been long forgotten. That the duty of compiling these reports, founded on official medical documents, should have been delegated to a captain in the army destitute of professional knowledge, seems indeed strange. Although it is acknowledged that Captain Tulloch has performed the task with great ability, yet the members of the medical department of the army have just cause for expressing dissatisfaction. In the preparation of the subsequent reports, especially the medical details, the compiler acknowledges his indebtedness to the "same parties," (a deputy inspector-general of hospitals and a staff-assistant surgeon,) whose names, instead of being associated as co-editors, are buried in the smallest type of a foot-note.

The second volume of Statistical Reports is investigated in the following order:—

I. *On the Sickness, Mortality, and Invaliding among Troops serving in the United Kingdom.*
II. *Among those serving in the Mediterranean stations.*
III. *Among those serving in British America.*

I. *The United Kingdom.*—To form a just estimate of the influence of different climates on the health of troops abroad, it is requisite to determine, in the first place, their liability to sickness and mortality at home. As the troops are passing continually to and from foreign service, the Reporter, to obtain correct results, has been obliged to confine his observations principally to those regiments of cavalry which have not been serving abroad during the period embraced in this report, and the Household Troops whose service is for the most part confined to the duties of the metropolis.

Contrary to what we find in the colonies, troops at home are seldom employed on any duty not strictly military. Fatigue and working parties are rarely necessary, "and, with the exception perhaps of occasional night duty, there appears nothing in the nature of their occupations likely to operate prejudicially to health. It may safely be affirmed that they are at least better lodged, better fed, and have less onerous duties to perform, than the great mass of the labouring population." That the mortality of the soldier, who is carefully examined at his enlistment in reference to physical defects, should be lower than that of the civilian, might be readily inferred. This is not, however, the case, at least to the extent anticipated.

Among the dragoon guards and dragoons, whose average age is from 29 to 30, the annual mortality from all causes is $15\frac{3}{10}$ per 1000. Now, by the Carlisle tables, which exhibit the mortality of England in the most favourable light, the number annually decreasing out of a thousand of that age, would be about 10. By Mr. Finlaison's observations, deduced from the duration of life among the government annuitants, it is about 13. The mean of these is $11\frac{5}{10}$, which corresponds very nearly with the ratio deduced from the population returns. At first sight, this would indicate that the military profession, even under the most favourable circumstances, operates prejudicially to the human frame; but it is accounted for by the great difference between the mortality in populous towns where the troops are generally quartered, and that of rural districts, on which the above calculations as to the duration of civil life are principally founded. It is shown that the mortality of the principal towns in the kingdom is nearly one-third higher at the prime of life than among the rural population. As the civil population of these towns, even between the ages of 20 and 30, is estimated at 16 per 1000, it follows that the apparent high ratio among the troops as compared with the general mass of the population, arises not so much from any deteriorating influence in their profession, as from the disadvantage of their being subject to the insalubrious atmosphere of densely populated districts.

The admissions into hospital among the dragoon guards and dragoons, amount, on an average of 7 years, to 929 per 1000, annually. The extent and duration of sickness among the working classes have frequently engaged the attention of the British legislature. Among the workmen in the government dock-yards, the ratio of attacks of sickness among every 1000,

in the course of the year, is only 407. But this striking disproportion is more apparent than real. It arises principally from the circumstance, that among soldiers every case of disease which comes under treatment, however slight, is entered on the hospital books as an admission, whereas in the dock-yards or among the working classes generally, cases are only recorded when of so serious a nature as to create an absolute disability for labour. Besides, the loss of wages consequent on such an occurrence must have a powerful tendency to reduce the number absent from sickness. With regard to the admissions into hospital among the troops, it is found that nearly two-thirds of the whole are of that class which seldom proves so serious as to incapacitate a person for the labours of civil life.

The prevalence of suicide among the dragoon guards and dragoons is truly surprising. Out of a total of 686 deaths, no less than 35, or upwards of one in 20 of the whole, have arisen from this cause, independent of many attempts which did not prove fatal. This ratio is more than five times greater than the proportion of suicides insured in the Equitable.

"This extreme tendency to self-destruction in the army will be best estimated by a comparison with the proportion of suicides in civil life in different countries, as stated by a recent statistical author.

In France there is annually	1	suicide to	18,000	inhabitants.
Prussia	"	"	1	"	14,404	"
Austria	"	"	1	"	20,900	"
Russia	"	"	1	"	49,182	"
In state of New York	"	"	1	"	7,797	"
In Boston	"	"	1	"	12,500	"
Baltimore	"	"	1	"	13,656	"
Philadelphia	"	1	"	15,875	"
Dragoon guards and dragoons in the United Kingdom	}	1	"	1,274	

"In cities, where a large proportion of the military are quartered, the ratio of suicides is greater than in the whole population of a country, but still much below that among our troops. In the department of the Seine, (Paris,) for instance, between 1817 and 1825, the suicides averaged annually

				1 in 2,400	inhabitants.
In Berlin,	from	1813	to 1822,	1 in 2,941	"
Geneva,	"	1820	to 1826,	1 in 3,900	"
London,	"	"	" "	1 in 5,000	"

"Even assuming, however, the very highest average in civil life in this country, it would appear that suicides are at least five times as numerous among this class of the military. It is necessary, however, to keep in view, that instances of self-destruction rarely occur among persons under the age of 18, and are by no means so frequent among females as males—circumstances which must materially influence any comparison between its prevalence among a population of all ages and sexes, and a select body of troops from 18 to 40 years of age."

What a commentary is this on the *morale* of the army! The principal causes are the two following:—Those who fill the ranks are mostly such as have proved themselves unfit for the trusts of civil life—and the hopeless nature of the service, all enlistments being for an *unlimited* period. The higher ratio of suicides among the dragoon guards and dragoons is doubtless owing to the circumstance that these corps contain more of that class who have by dissipation or extravagance reduced themselves from a higher sphere in life to the necessity of enlisting.

The Foot-Guards.—The annual mortality of these troops, on an average of seven years, is $21\frac{6}{10}$ *per mille*, being nearly one-half higher than the

dragoon guards and dragoons. This is the more remarkable, as the climate of London is not more insalubrious than many of the other towns in which troops are quartered throughout the kingdom. The average annual mortality of the civil population, between the ages of 20 and 40 is under 15 per 1000, and that of the East India Company's labourers employed there is as low as $12\frac{5}{10}$ per 1000 at the same period of life.

This excess of mortality among the foot-guards, compared with the other troops of the metropolis, arises entirely from diseases of the lungs.

"It would appear that this high ratio of mortality, by diseases of the lungs among the foot-guards, is not a necessary consequence of residence in the metropolis, but rather originates in some peculiarity in the moral or physical condition of that description of troops, from which the others are comparatively exempt." p. 10.

Thus, by calculations deduced from the London Bills of Mortality, it has been determined that, out of 1000 deaths among the civil population, scarcely one-third of the whole arose from diseases of the lungs; whereas, among the foot guards, out of 745 deaths, upwards of two-thirds were from this class of diseases. The ground here taken is confirmed by the results afforded by the class of troops now to be investigated, viz:

The Household Cavalry.—The annual mortality of this class of troops is $14\frac{5}{10}$ *per mille.* Although exposed to the climate of the metropolis, the mortality is not so high by at least one half as among the foot guards; and, compared with the cavalry corps employed throughout the kingdom, it is even lower. While, among the foot guards, the mortality from diseases of the lungs has averaged $14\frac{1}{10}$ per 1000 annually, among this class of troops it has been but $8\frac{1}{10}$. "That the exposure of the foot guards," says the Reporter, "in a greater degree on night duty, will scarcely account for this difference, may readily be supposed from the fact that even among troops of the line serving at home, whose constitutions have in some instances been deteriorated by residence in tropical or unhealthy climates, and who have an equal share of night duty to perform, the mortality by diseases of the lungs is much lower."

The reporter now proceeds to determine general results, as a fair standard for estimating the relative mortality by the same diseases among troops in the colonies.

Fevers.—The proportion of deaths annually by this class of diseases, taking the average of dragoon guards and dragoons, the foot guards, the household cavalry, and civil life, is $1\frac{6}{10}$ per 1000. It is further ascertained that fevers are more prevalent during the summer than the winter months, in the proportion of 5 to 4.

Eruptive Fevers.—This class of diseases, once a source of great mortality in the army, is now of rare occurrence. The annual mortality is not more that two out of every 10,000.

"It may be necessary to state, that, by the regulations for the management of regimental hospitals, the surgeon is called upon to report half-yearly, that every man, woman, and child, belonging to the regiment, bears unequivocal marks of either small or cow-pox, and he is directed to keep a register of the names and appearances, on the days of examination, of all patients vaccinated. Nothing shows the advantage of this precaution better than the fact that, in the dragoon guards and dragoons quartered throughout the kingdom, only one soldier has been attacked by small-pox in every 2000 annually." p. 12.

Diseases of the Lungs.—The annual mortality from this class may be

stated at 8 per 1000, exclusive of the foot guards, which are regarded as an exception.

"The rarity of recovery from consumption is strikingly exemplified in the fact, that, of 286 admissions among the dragoon guards and dragoons, 236 are ascertained to have proved fatal, and the remaining 50 are more likely to have consisted of re-admissions than recoveries.

"Nearly four-fifths of the fatal cases of diseases of the lungs arise from consumption, being as many as from all other causes in the army at home. The highest estimates in civil life rate the mortality from this disease at a seventh part of the deaths of all ages; or, if the observation is confined to adults alone, it may possibly amount to a fourth part, being at the utmost only half as high as among the troops.

"That soldiers should suffer so much from this disease is remarkable, as an active life, spent for the most part in the open air, has generally a very material tendency to counteract its influence." p. 13.

Diseases of the Liver are of very rare occurrence, and productive of little mortality.

Diseases of the Stomach and Bowels also induce little mortality, the annual average being only 5 per 10,000 of the strength. It is worthy of remark, that, notwithstanding in many of the colonies the mortality from this class of diseases is not only higher than in civil life, but in some cases even as high as by all the diseases in civil life together, in the United Kingdom it is even less than among the most select of the population.

Epidemic Cholera.—The annual mortality, during the three years that it prevailed, was about $2\frac{9}{10}$ per 1000 of the strength. It seems to have exerted its fatal influence with undeviating regularity in all localities, the ratio of deaths being the same within a fraction throughout the kingdom. The mortality, however, increased progressively with the advance of age.

Diseases of the Brain.—The annual extent of mortality from this class is 8 per 10,000, being only half the proportion which occurs in civil life.

Dropsies—The annual mortality from this source is $\frac{4}{10}$ per 1000.

On the Number constantly Sick in Hospital.—The average may be stated at 40 per 1000, which gives to each soldier $14\frac{1}{2}$ days sickness annually, whilst the average duration of each attack is sixteen days. On a comparison with the results given by benefit societies, dock labourers, &c., it is found that the ratio constantly sick and the number of days' sickness to each person, are more than twice as high in military as in civil life. This arises no doubt from the circumstance that, among the former, the slightest cases of indisposition are included.

On the Influence of Age on Mortality.—Among the dragoon guards and dragoons, the mortality increases progressively with the advance of age, but by no means in so rapid a ratio as in the West India stations. To this regular progression, there are some exceptions in the other corps.

On the Mortality among Officers.—Making proper allowance for the facility with which officers can dispose of their commissions in the event of bad health, the annual ratio of mortality among the officers of the household troops, dragoon guards, and dragoons, may be stated at $9\frac{1}{2}$ per 1000, being very nearly the same as among the most select class of individuals insured in the Equitable Office between the ages of 20 and 40. Among the officers of the regiments of the line on the tour of home service, during the same period, the ratio is 11 per 1000 annually.

On the influence of the seasons in producing sickness and mortality.—"Notwithstanding the large proportion of diseases which are attributed to the changeable nature of this climate, the attacks of sickness are fewest among the troops during the fogs and gloom of November, and throughout the winter they are considerably under the average, even though, from their professional duties, soldiers are much exposed to its severity; while during the months of July, August, and September, when there exists that mild and serene atmosphere which *a priori* might be supposed most conducive to health, the proportion of sickness generally attains its maximum. The same feature will hereafter be shown to exist to a still greater extent in America and other regions of the northern temperate zone." p. 21.

The unhealthy influence of the *autumnal* months on soldiers is strongly corroborated by the result of a recent investigation into the relative mortality of each month in the French army. Mons. Quetelet, a statistical author, whose attention has been drawn to this peculiarity of the mortality among troops, has been at great pains to ascertain from the population returns of Belgium, whether the same law extends to persons in civil life. As the reverse of this law is established in civil life, it is inferred that, in the army, the law results from the operation of a general cause affecting the health of soldiers.

The statistics of the United States Army, which are investigated by quarterly results, show, in the third quarter, (July, August and September,) invariably the highest ratio of morbility and mortality, in every section of the country. In the southern division, the high ratio extends more into the autumnal months than in the northern.

II. *On the Sickness and Mortality among Troops serving in the Mediterranean.*

The Mediterranean stations form three distinct military commands.

1. *Gibraltar.*—The climate of Gibraltar, notwithstanding it is dry and sultry in summer, and subject to fogs and mists throughout the year, may be characterised as healthy. During a period of five years, the greatest height of the thermometer in the shade was 91°, and the minimum 50°.

"The temperature in summer is always from 3° to 4° lower during the night than during the day—often much more; and in the morning before the sun appears above the Rock, and also towards sunset, the air is pleasantly cool and refreshing, even in the hot season. In these respects, Gibraltar enjoys a great superiority over Malta, where, though the extreme range of the thermometer is only 2° or 3° higher, there is, during the middle of summer, no perceptible reduction of temperature at night or in the morning, and the heat is much more oppressive.

"Though snow seldom or never falls, and ice is rarely formed, the cold is keenly felt during the winter months, especially by those who have been long resident on the Rock.

"The prevailing winds are from the westward and the eastward. It seldom blows from the north or south, and when from these quarters, continues but for a short time. The westerly winds are clear, dry, and refreshing; blowing directly on the town, they promote a free circulation of air, and are esteemed highly favourable to health. The easterly winds, or Levanters, as they are termed, have quite a contrary character; their baneful effects are said materially to aggravate wounds and acute diseases, and often to prove fatal to convalescents; being surcharged with moisture during their transit across the Mediterranean, they are always damp, raw, and unpleasant, and when from the southward of east, are generally accompanied with thick fogs, which envelope the Rock, and are supposed to produce the same debilitating effects as the sirocco in the upper part of the Mediterranean."

The average quantity of rain annually is 25½ inches. The rains generally commence in the end of September, or early part of October, and set in with such violence as frequently to overflow the water courses and commit great havoc in the streets of the town. The succeeding rains, which continue to fall at intervals till the end of May, are much lighter, and during the middle of summer there is seldom any, the sky is then without a cloud, vegetation becomes languid, and, unless irrigated by artificial means, generally perishes. Heavy dews and thick fogs prevail during the autumnal months, and keep up a constant dampness in the atmosphere, which renders it very unpleasant to the feelings.

The annual ratio of mortality is 22 per 1000; but in this is included the mortality occasioned by two fatal epidemics—one of yellow fever in 1828, and another of cholera in 1834. Exclusive of these, the annual mortality would not have been more than 13 per 1000. Sufficient evidence of the general salubrity of Gibraltar is afforded by the low mortality among the civil inhabitants.

Epidemic or Yellow Fever.—Among the medical officers of this station, great diversity of opinion obtains upon the question whether this disease is of local origin, and merely an aggravated form of the remittent fever, or of a contagious nature introduced by ships from foreign ports.

"The first appearance of this epidemic, of which we possess any specific details, was in August, 1804, but till the end of September it did not become so prevalent as to call for the notice of the public authorities. It then rapidly increased till the end of October, when it reached the maximum, after which it gradually diminished in frequency and severity, and ultimately disappeared in the end of December or beginning of January. In this instance, however, it seems rather to have died away from want of subjects than from any mitigation of the causes by which it was induced—for after the most diligent inquiry, only 28 adults could be discovered within the garrison who had escaped the malady, and it very rarely attacks the same person twice. A manuscript journal of the events of that period states that neither wind, rain, nor any change of weather, had the smallest effect in checking its ravages or diminishing its malignity; about one-third of the troops who were attacked died, and of the civilians a still greater proportion. The total number of deaths during its continuance amounted to—

Officers - - - -	54
Soldiers - - - -	864
Soldiers' wives and children -	164
Civilians - - - -	4864

"We cannot state the precise number of each class so as to ascertain the ratio of mortality, but about a fourth part of the troops and more than a half of the civil inhabitants were cut off. To the precaution of encamping the former out of town, which was adopted on the 26th of September, is probably to be attributed their not having suffered to so great a degree as the civilians who remained constantly within the garrison." p. 8.

A similar disease appeared in 1810, when only 6 died. It made its appearance again in 1813, cutting off 461 of the troops, and 883 of the inhabitants; and again in the following year, causing the loss of 114 of the military, and 132 of the inhabitants. The garrison suffered from no similar visitation until 1828, when the epidemic carried off 515 of the military, (including 83 women and children,) and 1281 civilians. In all these instances, as soon as the troops were removed to encampments on the "Neutral Ground," they became in a measure exempt, notwithstanding it continued to rage in the town. In 1813, and in 1828, the mortality

attained its maximum on the 16th of October, and in 1804 about a week earlier.

"Without venturing an opinion as to whether this epidemic is one *sui generis*, or merely an aggravated form of remittent fever, there is one marked peculiarity to which it is necessary to advert. In Gibraltar the same individual has seldom been attacked twice, even though a long series of years may have elapsed since he first suffered from it, but in the West Indies, and on the west coast of Africa, a former attack of remittent fever secures no such immunity—indeed it could be proved, by reference to the returns from these stations, that in many corps every soldier must have been treated, on the average, twice or thrice for remittent fever during the few years of his service there." p. 9.

We have already remarked that at New Orleans one attack of yellow fever is believed to secure an immunity against the second. As the author makes no distinction between the bilious remittent fever of warm climates and the genuine *febris icterodes*, we do not see what bearing the fact that every soldier may have been treated twice or thrice for remittent fever, has upon the subject. In the British reports, the medical officers pursued an arbitrary classification, some considering "bilious remittent fever" a better nosological term than "yellow fever." Much of the obscurity in relation to yellow fever may arise from the circumstance that the appellation has been bestowed upon diseases entirely distinct, though resembling one another in their most striking features.

The cause of this disease at Gibraltar is still involved in much obscurity. To meteorological observations, which, for many years, were made with great care, we look in vain for a solution of the mystery. Though no marked diminution, either in prevalence or severity, could be distinctly traced to the occasional reductions of temperature which took place during the continuance of this disease, yet it may be proper to observe that these epidemics have never been known to make their appearance at this station during winter, and have always declined in severity as that season approached. It further appears that a removal, even to a small distance from the town, secured a complete immunity from the epidemic. In the present state of our knowledge, we are not justified in saying that the same miasm which produces remittent fever, can, in its more aggravated state, excite yellow fever, nor indeed that the latter is of paludal origin.

Diseases of the Lungs.—"The ratio of admissions by this class of diseases is to that in the United Kingdom as 141 to 148, the principal difference being that catarrhal affections are less frequent in Gibraltar, while inflammation of the lungs is much more so; the cases of the latter are, however, of a milder character, as only 1 in 45 died of those admitted into hospital in Gibraltar, while 1 in 18 died of those admitted for the same cause among the dragoons guards, and dragoons in the United Kingdom. The total mortality by diseases of the lungs would appear to be less at this station than at home; but that, we apprehend, arises from many of the consumptive patients being invalided, who, if they die on their passage, or after their arrival in Britain, are not included in the returns of the station where their diseases originated." p. 11.

Diseases of the Liver.—This class of diseases is, only in a very slight degree, more prevalent or fatal than in the United Kingdom.

Diseases of the Stomach and Bowels.—Compared with the results given in the United Kingdom, it would appear that this class of diseases is twice as prevalent and thrice as fatal. Salt meat, more than increased temperature, is assigned as the cause by the Reporter.

Epidemic Cholera.—In a strength of 3048, there were 459 cases and 131 deaths, being one in 3½.

"The medical officers seem to have been almost unanimous in their opinion that the disease was not contagious. In the same ward with the cholera patients in the civil hospital were several persons labouring under other diseases, who, although in constant communication with, and frequently in attendance on those suffering under the epidemic, were in no instance affected by it. In the military hospital, too, it was observed that the orderlies employed in attendance on the sick were not attacked in a greater proportion than others who were not so employed.

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"It may also be stated, as another evidence on this subject, that, of 30 medical officers in constant attendance on the sick during the prevalence of the epidemic all of whom, from the nature of their duties, were subject to great fatigue and anxiety, only one or two exhibited any symptoms of the disease, and these cases were comparatively slight. p. 14.

Diseases of the Brain.—The proportion admitted is the same as among the dragoon guards and dragoons, whilst the ratio of deaths is even lower.

Dropsies.—The ratio of admissions and deaths is exactly the same as in the United Kingdom.

Venereal Affections are exceedingly rare, the ratio of admissions being scarcely one-third as high as among troops at home. Although the strictness of the police regulations for the exclusion of all females likely to communicate these diseases, may in some measure account for this comparative exemption, yet it may be inferred that this climate, like that of the West Indies, may be unfavourable to their existence or propagation.

Black Troops.—In 1817, the Fourth West India regiment was sent to form part of this garrison, under the expectation that this class of troops would prove extremely useful in relieving the British soldiers from such duties as subjected them to exposure during the heat of the day. An experience of one year and ten months afforded, however, a striking instance of the unfitness of the constitution of the negro for any other than his native climate; for the annual ratio of mortality was 62 *per mille*, being at least four times as high as that of the European troops in Gibraltar during the same period. More than nine-tenths of the deaths arose from diseases of the lungs and the bowels.

2. *Malta.*—This island contains neither river nor lake, and has, from its geological structure and the absorbent nature of the soil, but little marshy or swampy grounds. There is no exuberant vegetation, brushwood, or forest; the verdure is scanty, and the greater part of the surface presents nothing to view but the arid rock.

"Malta, being much exposed to the influence of the hot winds which sweep over the deserts of Africa and the sandy coast of Egypt and Syria, is subject to a higher temperature, particularly during the summer months, than is usual in the latitude of that island; indeed, the heat at that period is little inferior to what is experienced in tropical regions. This high degree of temperature exists not only during the day, but, owing to the radiation of the heat absorbed by the rocky surface of the ground and the thick stone walls of the buildings, continues, with very little abatement, even after the solar influence has ceased; and sometimes, for a period of several weeks together, the thermometer maintains, during the night, the same height as throughout the day, creating thereby a feeling of extreme lassitude and oppression among all classes of residents." p. 18.

The range of the thermometer, on an average of five years, is from 52½° to 86° Fahr. In regard to the quantity of rain which falls, the Reporter possesses no data.

"In September there are frequent showers, increasing in frequency during October and November; but from December to February the rain falls with nearly the same violence as in the tropics, and the atmosphere continues surcharged with moisture till March; it then begins to clear, and during the five following months scarcely a drop falls, and the sky is generally without a cloud.

"The most prevalent winds in Malta are from the southeast, south, and northwest. That from the southeast, termed the sirocco, is the most common; and the disagreeable effect it produces on the human frame is frequently adverted to in the medical reports. It prevails principally during the autumnal months. There is no regular land and sea-breeze, which, in some southern stations, serves materially to modify the temperature." p. 18.

This island seems to be less salubrious than Great Britain; for the annual ratio of mortality among the inhabitants is nearly $2\frac{5}{10}$ per cent., whilst in England it is only $2\frac{2}{10}$ per cent. But besides the mortality of ordinary years, on which the above estimate is founded, Malta, in 1813, suffered from the ravages of the plague, which cut off 4486 of the inhabitants, between April and November; and in 1837, cholera broke out, which also carried off several thousand.

Including the deaths from accidental causes omitted in the medical returns, the annual ratio of mortality among the troops is $18\frac{7}{10}$ *per mille*—a sufficient proof that the climate of Malta does not deserve the character for salubrity so generally assigned to it. We have already shown, says the Reporter, by reference to the mortality among the natives, that it is much the same, in this respect, as the other states in the south of Europe, and the extent of mortality among the troops, during the above period of 20 years, sufficiently corroborates that deduction. Notwithstanding the mortality is less than at Gibraltar, the extent of sickness is greater, the excess being principally among those diseases which seldom prove fatal.

Fevers.—The troops at this station suffered more from fevers than at Gibraltar, excluding the epidemic of 1828, and twice as much as those at home.

Diseases of the Lungs.—Having given the usual tabular view of this class of diseases, the Reporter observes—

"The climate of this island appears from the preceding results to be by no means favourable to persons predisposed to these diseases: the mortality is higher than in Gibraltar, and there is every reason to believe that could we have taken into account the number invalided, and who died on their passage, it would have proved even higher than at home. It is somewhat remarkable that, in a climate where the thermometer never sinks to the freezing point, where the temperature at night is generally within a few degrees the same as during the day, and where those sudden transitions from heat to cold, to which this class of diseases is generally attributed in other countries, are exceedingly rare, the ratio of admissions should be only about one-fifth less than in the United Kingdom.

"It may serve as a striking illustration how little influence the climate of Malta is likely to have in diminishing the tendency to consumption, that the proportion attacked by that disease among the troops there during the last seven years, has averaged $6\frac{7}{10}$ per thousand of the strength annually, while in the United Kingdom, during the same period, the proportion attacked of the dragoon guards and dragoons was but $6\frac{4}{10}$ per thousand annually. Nor is the fatal influ-

ence of diseases of the lungs confined to the troops alone; it extends in a corresponding degree to the inhabitants."

Having given a table of the pulmonary diseases reported among the civil population, the Reporter adds—

"This total of 6664 deaths in 13 years, shows the mortality to have been 513 annually, which upon an average population of 100,000 of all ages, is about $5\frac{1}{8}$ per 1000 of the strength, being scarcely one per 1000 less than among the troops, notwithstanding the night exposure of the latter in the course of their military duties.

"Though the climate of this island has been supposed favourable to diseases of the lungs, its inhabitants appear to suffer from them nearly as much as those of high northern latitudes; for the returns of Sweden show that there were only 14,087 deaths from this class of diseases out of the whole population in one year, being in the ratio of $5\frac{6}{10}$ per 1000, or within a fraction the same as in Malta."

For the present we shall merely say that these comparisons and influences are unwarranted by the data. In our concluding remarks we will show the fallacy of the comparisons in which the ratio of the United Kingdom is taken as the standard, and the still greater fallacy of the comparison between the British troops and native population. The cases of *marasmus*, which "occurred principally among children and old persons," have been included under the head of *consumption*, in the tables of the civil population of Malta!

Diseases of the Stomach and Bowels.—This class of diseases prevails to a considerable extent, but not in very aggravated forms. As in the Report of the West Indies it was stated that these affections produced comparatively little mortality either among the officers or civil inhabitants, so it was inferred that among the soldiers it was, perhaps, not so much attributable to the influence of climate as to the quality of the diet to which they were restricted. We now possess an indirect proof of the accuracy of these deductions in the fact, that in Malta, where the troops enjoy the advantage of fresh provisions, the mortality among them by diseases of the bowels does not exceed that of the civil inhabitants. Although no diet, however simple or well regulated, will secure to the soldier an entire immunity from diseases of this class when exposed to a high temperature in tropical climates; yet it is apparent that the same quantity of salt meat, which might be consumed in northern regions with comparative impunity, may, in warm latitudes, prove an active source of disease. In the United States, diarrhœa and dysentery are much under the influence of season and climate. Like intermittent and remittent fever, the ratio augments with the increasing temperature of season and the decrease of latitude. In the southern regions, the annual ratio of diarrhœa and dysentery is more than twice as high as the northern; and, taking the general average of the United States, the ratio of the third quarter is more than threefold greater than that of the first.

Diseases of the Brain.—The ratio of admissions and deaths by this class of diseases very nearly corresponds with the average of the United Kingdom and Gibraltar. In Malta, as in England, the mortality from this cause is twice as high among the civil as the military population. It would seem that high temperature exercises little or no influence upon cerebral affections.

Malta Fencibles.—In this corps, composed entirely of natives enlisted

for a limited period of service, the annual ratio of mortality is only 9 per 1000. As this is less than half the mortality among the troops of the line, it strikingly demonstrates the exemption enjoyed by soldiers composed of the indigenous inhabitants of a colony, compared with those foreign to the climate.

"The Maltese use very little animal food; bread, with the vegetables of the country, and occasionally a little fish, forms their principal sustenance; and the healthy and efficient state of the corps may no doubt be partly attributed to the important circumstance that, in becoming soldiers, they have not been required to change the simple diet which nature seems to have pointed out to the inhabitants of all southern latitudes as most conducive to their health." p. 29.

3. *Ionian Islands.*—The islands comprised in this military command are Corfu, Paxo, Santa Maura, Cephalonia, Ithaca, Zante, and Cerigo. The physical aspect of these islands is very much alike. Mountainous, rugged, and for the most part comparatively barren, they, at first sight, present nothing to the view but masses of bare rock, broken into abrupt and picturesque forms, and intersected by deep clefts and ravines, which occasionally open into valleys of limited extent.

"As these islands, with the exception of Cerigo, do not differ materially in geographical position, there is but little difference in the nature of their climate. Like all mountainous regions, they are subject to sudden atmospherical vicissitudes; the extremes of cold and heat, dryness and moisture, tempestuous and calm weather, often succeeding each other in the space of a few hours. * * * * The degree of heat at particular seasons is greatly influenced by the direction of the wind. When from the north or northeast it is generally cool and pleasant, but from the south or its collateral points it is hot and humid, often accompanied by mist and rain, and not unfrequently by the sirocco, during the continuance of which not only is vegetable life parched and languid, but the animal powers succumb to its influence. Patients previously convalescent are apt to relapse, ulcers and wounds become more difficult of cure, and every type of disease, but particularly remittent fever, assumes a more aggravated form." p. 30.

The mean temperature of each month, on an average of 10 years, ranges from 52° (February) to 81½° (August). But the extremes of heat and cold are said to be much more sensible to the feelings than is indicated by the mere range of the thermometer. Of the annual quantity of rain we possess no exact measurement, but it appears to be rather under than above the average in similar latitudes.

The climate of these islands has proved much more inimical to British troops than that of the other Mediterranean stations. Compared with Malta, the annual ratio of mortality per 1000 is as $28\frac{3}{10}$ to $18\frac{7}{10}$, and with Gibraltar as $28\frac{3}{10}$ to 22. Among the natives of the Ionian islands, however, the mortality does not appear to be higher than among those of Malta or the south of Europe.

Fevers. One of the leading features of the climate of the Ionian isles, is the prevalence and fatal character of this class of diseases, to which alone nearly one-half of the admissions and deaths are attributable. By remittent fever, 9 per 1000 of the strength have been cut off annually, though not more than one in three thousand has died from the same cause in Malta, or even in Gibraltar, if we exclude the epidemic of 1828. This disease, though not so prevalent, is nearly as fatal as in the West Indies, 1 in 11 having died of all those attacked, and occasionally at some of the

stations, even as many as 1 in 3. Its prevalence is confined mostly to the months of July, August, September, and October, whilst the remittent fever of the West Indies and Africa rages with great severity at all seasons, though more commonly from July to October. It is stated that those who have had remittent fever in the summer are particularly liable to intermittent in winter, even if they have removed to a station where the latter is otherwise rare. The same fact was observed in the cases of fever which proved so fatal to the British troops at Walcheren.

Diseases of the Lungs. "Notwithstanding the variable character of the climate, the rapid alternations of temperature, and the tempestuous weather which frequently prevails in this command, diseases of the lungs are both less prevalent and less fatal than at Malta or Gibraltar: the admissions into hospital by that class of diseases in these three commands being respectively as 90, 120, and 141, and the deaths as $4\frac{8}{10}$, 6, and $5\frac{3}{10}$ per 1000 of the strength annually. The principal exemption in the Ionian islands is from catarrhal affections, which are not half so prevalent or half so productive of mortality as in the other Mediterranean stations, or in the United Kingdom. Most of the deaths arise from consumption; but neither is the proportion attacked so high, nor the fatal cases so numerous as in Malta, where there exists a comparatively equable temperature, and that mild condition of the atmosphere which is supposed favourable to persons predisposed to that disease. * * * It is stated in many of the Medical Reports that, owing to the sudden and frequent atmospherical vicissitudes in this climate, inflammation of the lungs is extremely frequent and fatal. The result of these investigations, however, establishes that it is not more so than in other stations which are less liable to such vicissitudes." p. 35.

But more of this anon.

The remaining diseases, classified in the usual manner, do not present any characters different from those generally exhibited in the Mediterranean stations.

Plague.—This terrible disease has not prevailed in any of the Ionian islands since 1817. Unlike the ordinary course of febrile epidemics, it seemed to be wholly uninfluenced by the seasons, being just as virulent in the middle of winter as in the opposite season, nor did it become more mild in character as the epidemic was about to disappear. We possess no exact statement of the mortality induced; but it is stated in Gregory's "Practice of Physic," that among 700 attacked in the district of Leſtimo, only 70 recovered. Whilst some maintain the doctrine of importation and subsequent propagation by contagion, others held that it is attributable to the operation of some unappreciable atmospherical agency.

Having concluded his observations in reference to the command generally, the Reporter next examines in detail the statistics of each station, viz. Corfu, Paxo, Santa Maura, Cephalonia, Ithaca, Zante, Cerigo, and Parga, and thus determines their relative salubrity. In the "General Summary," he gives a table for the purpose of showing how inadequately the operation of any general cause, as heat or moisture, accounts for the striking difference of mortality in the same years, at stations in the same vicinity.

"Here then we find that, instead of extending over the whole command as they would be likely to do if resulting from the operation of any general cause, the sudden accessions of mortality which occasionally take place are frequently confined to one island, while others, in the immediate vicinity, are exempt. In 1818, for instance, when 50 per 1000 of the strength died at Zante, the mortality at Cephalonia, only a few miles distant, was but 9 per 1000. In 1817 and

1819 the troops were unhealthy both at Santa Maura and Zante, while those of Cephalonia, lying between them, experienced no more than the usual degree of mortality, and in 1828 and 1829, though a fourth part of the force was cut off at Santa Maura, those at Corfu and Zante were subject to no great degree of sickness, and even those in Cephalonia, immediately adjacent, did not suffer in any marked degree. Various other instances of a similar nature might be quoted." p. 54.

On the Influence of Age and Length of Residence on the Mortality of Troops serving in the Mediterranean.—It appears that the mortality increases with the advance of age at all these stations in a much more rapid ratio than in the United Kingdom. This is particularly observable at Malta, where the increase is nearly as rapid as in tropical regions. The rapid increase of mortality with the advance of age in each of these three commands, sufficiently demonstrates that in the Mediterranean, as in the West Indies, troops do not suffer less in proportion to their length of residence, but the reverse. The doctrine of acclimatization, therefore, falls to the ground, when subjected to the test of numbers. Even febrile diseases, in which the advantage of length of residence in warm climates is supposed to manifest itself most strongly, increase with almost as uniform a progression as that which regulates the law of mortality at different ages.

Deductions from the preceding Report.—In regard to pulmonary diseases, the Reporter remarks—

"The mild climate of the Mediterranean has generally been considered favourable to the cure or prevention of consumption, and other pulmonary affections. To ascertain whether this supposition is well founded, or the reverse, is manifestly an object of much importance to medical science, and can only be determined by investigations extending over a long series of years, and including large masses of individuals. The experience of civil practitioners, however carefully recorded, is on too limited a scale to warrant general conclusions on a subject of such magnitude; yet, hitherto, no other source of information has been available for that purpose, and it is not surprising, therefore, if their conclusions, when submitted to the test of numerical calculation, are, in many instances, found to be erroneous." p. 63.

Having given a table showing the relative prevalence of consumption among the troops in the Mediterranean and the United Kingdom, the Reporter proceeds—

"This affords so accurate a standard of comparison as to place beyond a doubt the interesting fact, that, except the Ionian Islands, the liability of troops to consumption in the Mediterranean stations is even greater than in the United Kingdom. We have not compared the deaths by consumption for a similar period, because conclusions could not have been drawn in regard to the relative mortality with the same accuracy, so many laboring under that disease having died on their passage home or after their arrival in this country; but from all the information we have been able to obtain there can be no doubt that if due allowance is made for these casualties, the proportion of deaths also, among those attacked by consumption, will be found fully as high in the Mediterranean as in the United Kingdom.

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"These facts offer a striking contradiction to the popular idea regarding the influence of sudden atmospherical vicissitudes and rapid alternations of temperature, in inducing this disease; but it is even more remarkable that similar results should be obtained in regard to the relative prevalence and mortality by pleurisy and inflammation of the lungs, which are supposed to be still more influenced by these agencies. * * * * Here, then, we find that inflammatory affections of the lungs are nearly twice as prevalent in the Mediterranean as among the

same number of troops in the United Kingdom, and that in the mild climate of Malta they are also twice as fatal.

"These facts, combined with a careful examination of the Abstracts in the Appendix, lead to the inference that residence in the Mediterranean, though so often recommended to patients labouring under pulmonary affections, is by no means likely to be attended with beneficial results: in some cases, no doubt, change of air, change of scene, and the sea-voyage, may have benefitted a patient, and led to a partial recovery, but the same would in all probability have taken place wherever he had been sent, it being by no means likely that any beneficial influence can be exerted by the climate itself, when a body of selected soldiers, subject to no severe duty and exposed to no hardships, lose annually a larger proportion of their number by consumption than in the United Kingdom." p. 64.

These extracts are not made in commendation, but to exhibit fairly the Reporter's views, to the end that the reader, in the sequel, may be enabled to perceive that mere figures are not facts, and that unless deduced from correct data they serve only to mislead.

III. *On the Sickness and Mortality among the Troops in British America.*

The stations occupied by the British troops on the Continent and the Coast of North America form four military commands:—1. The Bermudas; 2. Nova Scotia and New Brunswick, including Cape Breton and Prince Edward's Island; 3. Upper and Lower Canada; and 4. Newfoundland.

1. *The Bermudas.*—These islands lie about 600 miles to the east of South Carolina, in lat. 32° 25′ N., long. 64° 50′ W. They are said to exceed 300 in number, but most of them are barren rocks, four only being of sufficient importance to be garrisoned by troops, viz. St. George, the Main, Somerset, and Ireland Island.

Although very destitute of soil, which generally consists of the debris of marine shells mixed with sand and vegetable mould, yet a considerable part of these islands, particularly on the southern side, is covered with forests of lofty cedar. There is little cultivation, and the produce consists principally of arrow-root, Indian corn, yams, and potatoes.

"The climate of the Bermudas has been described by some authors as a perpetual summer. This description, however, appears to be rather overstrained; compared with the climate of northern regions, or even of the adjacent coast of America under the same latitude, it is certainly uniform; but the summer is exceedingly hot, even more so than in the West Indies, probably attributable to the light and scanty nature of the soil, which, being speedily divested of vegetation by the influence of solar heat and the absence of moisture, reflects the sun's rays from its arid surface with increased intensity. The absence of the regular trade winds, which serve to modify the heat in the West Indies, has by some been supposed another cause of the high range of temperature during the summer months, but this seems by no means probable in a climate where there is rarely a calm, and strong winds generally prevail from one quarter or another." p. 3.

The temperature of the summer months in the Bermudas, compared with that of British Guiana, which is 1500 miles to the south, exhibits an excess of several degrees.

"The limited extent and moderate elevation of the Bermudas leave them exposed to every breeze, and, in these regions, calms are seldom of long continuance. Southerly winds are most common during the summer, and are

said to be damp and oppressive; those from the northeast frequently blow with great violence during winter, and are dry, cold, and in many instances too keen for invalids. Winds from the west and northwest are most common in spring and autumn, and, when from the latter point, are generally accompanied by heavy falls of rain or thunder-storms." p. 4.

The annual ratio of mortality, according to the War Office Returns, is $32\frac{1}{3}$ per 1000 of the strength; but this includes an epidemic of yellow fever, in 1819, by which a fourth part of the force was cut off in a couple of months. We may here remark that, with the exception of the statistics of the United Kingdom, nearly all the results are based on an average of twenty years.

Fevers.—If we exclude the sickness and mortality by yellow fever in 1818 and 1819, the other types of fever will be found less frequent and less fatal than at any of the Mediterranean stations; and, notwithstanding the numerous marshy situations in some of these islands, fevers of the intermittent form are almost altogether unknown. Eruptive fevers are exceedingly rare, only two cases being reported in the course of twenty years.

Diseases of the Lungs.—"Though this class of diseases, when taken in the aggregate, does not appear to be very prevalent in these islands, yet the most dangerous of them, viz. inflammation of the lungs and consumption, are decidedly so, and hence the above ratio of mortality is unusually high, being $8\frac{7}{10}$ per 1000 of the strength annually, which is more than among troops in the United Kingdom, or any of the Mediterranean stations.

"This appears more remarkable when we consider the uniformity of temperature at the Bermudas during a great part of the year, and the absence of those extremes of cold to which such diseases in northern latitudes are frequently attributed. It is sufficiently demonstrative of the erroneous nature of the ideas generally entertained on this head, particularly as regards consumption, that 9 per 1000 of the troops at this station are attacked annually by that disease, of whom nearly three-fourths die before an opportunity offers for their removal, while in Great Britain the proportion attacked annually is but $6\frac{4}{10}$ per 1000." p. 7.

Hepatic Affections are twice as prevalent and twice as fatal as in the United Kingdom.

Diseases of the Stomach and Bowels are even more prevalent than in the windward and leeward command, but less severe in character. Their prevalence is attributed to the inadequate supply of fresh provisions.

Diseases of the Brain, if we deduct the cases and deaths reported under the head of *delirium tremens*, are, notwithstanding the high temperature, exceedingly rare.

Venereal Affections.—Of these the ratio is remarkably low—an exemption which cannot, as at some stations, arise from any sanatory regulations.

2. *Nova Scotia and New Brunswick.*—The peninsula of Nova Scotia, which is about 280 miles in length, and from 50 to 100 in breadth, is perfectly insular, except the point—a strip of land only eight miles in width—which connects it on the northwest with the province of New Brunswick. The superficial area of this peninsula is computed at 15,600 square miles, of which not a twentieth part is cleared, or under cultivation. Its physical aspect is generally undulating, but the loftiest range of mountains does not exceed 800 feet. The south and west coast are deeply indented with numerous bays and lagoons by the action of the Gulf Stream,

which, rushing upon this portion of the continent in tides of from 60 to 70 feet, overflows the country to the distance of several miles, and converts the mouth of streams, fordable at low water, into extensive arms of the sea where whole fleets might ride at anchor.

"As a necessary consequence of this phenomenon, a very considerable portion of the banks of the rivers and the heads of the bays on that side of the peninsula, is constantly in a marshy state, and as these tides are thickly impregnated with alluvial soil, owing to the force with which they are impelled against the adjacent continent, they leave on their reflux a considerable deposit of mud, which, by the aid of embankments, is converted into rich meadow land; and even where no such care has been taken, spontaneously supplies a coarse winter fodder for cattle.

"Though the southeast coast may therefore, from the nature of its soil and surface, be considered as in a great measure free from the agencies supposed to give rise to malaria, yet the western coast, particularly around Windsor and the head of the Bay of Fundy, abounds in them in no ordinary degree, both as regards marshy land, and a muddy surface exposed during summer to the action of a high temperature. The interior of the peninsula, too, is so much intersected by lakes and bays, that nearly one-third of its surface is under water, yet the inhabitants enjoy a remarkable degree of health, and an almost total exemption from those intermittent and remittent fevers, which, as we shall hereafter have occasion to show, affect the constitution in Upper Canada to so remarkable an extent.

"The climate of this province is distinguished by great and sudden alternations of temperature, such as, even in the changeable climate of Britain, appear almost incredible; though Nova Scotia is in this respect less remarkable than some of the North American stations, the thermometer has been known to exhibit a difference of 52° in 24 hours. The atmosphere is also exceedingly moist, the showers heavier and more frequent than in Britain, and fogs are common along the sea-coast throughout the year, but particularly in May and June, though they seldom extend any distance into the interior.

"Though the winter is no doubt exceedingly severe, as compared with that of Great Britain, yet the cold is not by several degrees so intense as in that part of the American continent farther to the west, neither is the heat of summer so great, *probably*, attributable to the insular situation of the province having a tendency to modify both these extremes, the thermometer is seldom lower than 6° or 8° below zero in winter, or above 88° in summer, but we possess no table sufficiently accurate to exhibit its precise range for a series of years."

The modified climate of Nova Scotia is, *of course*, attributable to its insular position, and to its being extensively intersected by lakes and bays. Some influence is also to be ascribed to the Gulf-stream, which strikes upon this part of the coast.

"The prevailing winds are from the east in the spring, from the south or southwest in summer and autumn, and from the north or northwest in winter, at which period a change to any other quarter is generally followed by a rapid rise in the thermometer, accompanied by much rain or snow.

"From December to the end of March the ground is generally covered with snow. Summer follows winter in such rapid succession, that there is scarcely any spring, but the autumn is pleasant and sometimes of long duration, as, towards its termination, there is frequently a continuance of what is termed the Indian summer, till December again ushers in the winter with its usual severity." p. 11.

The Reporter next gives the medical topography of the military stations of Nova Scotia, viz., Halifax, Windsor, Annapolis, and the adjacent islands of Cape Breton and Prince Edward.

New Brunswick.—This province, which comprises nearly 14 millions of acres, is united to Nova Scotia by the narrow strip of land referred to above. It differs from that peninsula in being composed of bolder undulations, which in some parts assume a mountainous character, and it has been brought less under cultivation.

The troops are principally quartered at St. Johns and Frederickton.

"The climate of New Brunswick, particularly at Frederickton, is not liable, during winter, to such sudden vicissitudes as that of Nova Scotia. The frost is steadier, and the winter more severe as well as of longer duration; the heat of summer is also more intense, and the thermometer, in the course of one year, has been known to range from 96° above to 42° below zero, though these extremes are considerably beyond the usual average.

"As in Nova Scotia, fogs are common along the sea-coast of New Brunswick, particularly in the months of May and June, but seldom extend any distance into the interior, nor do they appear in the slightest degree prejudicial to health, the stations most exposed to them being quite as free from sickness as any other part of the command." p. 13.

The annual ratio of mortality in Nova Scotia and New Brunswick, on an average of 20 years, is according to the Medical Reports, $14\frac{7}{10}$, and, according to the War-office Returns, 18 per 1000.

Fevers.—These are mostly of the common continued type which is found to prevail in every climate. So rare are intermittents that not two cases occur among the whole force annually, and these have in almost every instance been traced to individuals who had previously suffered from them in Upper Canada. As the soil of Halifax is arid and rocky, this exemption might be expected there; but it is surprising that it should extend equally to the troops and inhabitants of Windsor, Annapolis, Fort Cumberland, and Frederickton—situations abounding with those supposed sources of malaria, which, in the provinces of Upper Canada, are found, or at least supposed to produce fevers of the remittent and intermittent type.

In the statistics of the United States Army, the same contrast, as regards the prevalence of intermittent fever, is found to exist between the posts on the coast of New England and those on our northern chain of lakes. Whilst in the former region, intermitting fever is almost unknown, scarcely a case reported being of domestic origin, the disease, in the latter, is very rife. At Fort Gratiot, situated at the outlet of Lake Huron, for example, the annual ratio of cases is 72 per 1000 men. As respects remittent fever, however, the average on the lakes is but little higher than on the coast of New England.

Diseases of the Lungs.—It is remarked by the Reporter that notwithstanding the severe winter and sudden atmospherical vicissitudes, peculiar to Nova Scotia and New Brunswick, diseases of the lungs are less prevalent in the proportion of 125 to 148, and less fatal in proportion of $7\frac{1}{10}$ to $7\frac{7}{10}$. Were any other proof necessary to show how little even the most acute of these diseases seems to be aggravated by such atmospheric influence, it would, according to the mistaken views of the Reporter, be found in the relative proportion treated for inflammation of the lungs and pleurisy in this command, compared with the Mediterranean and Bermuda—climates remarkable for their mild and equable temperature.

Diseases of the Liver, and of the Stomach and Bowels. The prevalence of these two classes of diseases is about the same as among the

dragoon guards and dragoons serving in the United Kingdom; but the mortality by the former is only half as high, whilst that by the latter is twofold greater.

Epidemic Cholera. In 1832, when the disease raged with great severity in Canada, the troops in this command escaped it; but in 1834, it broke out among those at Halifax. It is worthy of remark that in two instances in which troops suffering from this malady were removed only a few miles, it quickly disappeared. Although the circumstances under which the disease first appeared were such as to favour the idea of contagion, yet nothing occurred in the course of its progress to strengthen that supposition.

3. *Canada.*—This military command, which includes the provinces of Upper and Lower Canada, is of so vast an extent as to preclude anything like a geographical description.

"The climate of the lower province is distinguished for the extreme severity of its winter, and the sudden alternations of temperature to which it is subject; so remarkable are these, that at Quebec the thermometer has on some occasions been known to fall 70° in the course of 12 hours; the cold weather sets in as early as November, and from the end of that month till May, the ground remains covered with snow to the depth of 3 or 4 feet. During this period there is generally a clear dry atmosphere, with light northwesterly winds or calm weather, and the sensation of cold is by no means so acute as might be anticipated from the low range of the thermometer; but when the wind blows from the northeast, especially with any degree of violence, the intensity of the frost becomes so excessive, that on several occasions the mercury, frozen in the thermometer, has no longer served to record the extreme reduction of the temperature. The general range, however, during winter, is from the freezing point to 30° below zero.

"Though there is seldom a complete thaw in winter, yet occasionally, when the wind changes to the southward and eastward, the usually clear and serene sky becomes overcast, the atmosphere damp, and a considerable rise in the thermometer takes place, accompanied by thick fogs and a heavy fall of snow. The seasons do not glide imperceptibly into each other as in more temperate regions; summer succeeds so rapidly to winter that the thermometer sometimes rises to 80° degrees at mid-day before the ground is clear from its covering of snow.

"Summer commences about the middle of May, and is usually ushered in by moderate rains and a rapid rise in the temperature, though the nights still continue cool; but during June, July, and part of August, the heat is great, indeed often as oppressive as in the West Indies, the thermometer frequently attaining to 95° in the shade; in these months the rain is never excessive, nor of long duration; the earth, already saturated by the melting of the snow, requires no further supply of moisture to aid the rapid progress of vegetation." p. 20.

Upper Canada may be said to extend from the Hudson's Bay Territory, in latitude 46°, on the north, to that of the United States, latitude 42° on the south; and from the river Ottowa and boundary of Lower Canada on the east, to the distant shores of the Pacific. A region of such extent necessarily presents considerable diversity of climate. Compared with Lower Canada the Reporter observes as follows:

"It [the winter] is, in general, shorter by at least two months, while spring and autumn are lengthened in a corresponding proportion. The frost is, perhaps, for a few days as intense, but never of such duration; and thaws occur at short intervals. Snow seldom falls in any quantity till towards the end of December, and usually disappears in March; and the severity of the winter is said

to have perceptibly diminished of late years, as the surface has been cleared and brought under cultivation.

"The climate is generally more equable than the lower province; and though the thermometer ranges higher by a few degrees, the summer heat is not so oppressive, probably owing to the influence so vast a body of water is likely to exert in modifying the temperature, and to the cooling breeze which prevails along the lakes during the day." p. 22.

The influence of these ocean-lakes, which contain an area of 93,000 square miles, upon climate, is no longer a doubtful question. In the "*Army Meteorological Register*," published by Surgeon General Lawson, the subject is satisfactorily elucidated. Proceeding from the Atlantic ocean westward, the variations of the *isotheral* and *isocheimal* curves—the lines of equal winter and summer temperature—afford a beautiful illustration of the equalising tendency of large bodies of water. On the coast of New England, the ocean modifies the range of the thermometer and the mean temperature of the seasons; as we advance into the interior, the extreme range of temperature increases and the seasons are violently contrasted; having come within the influence of the Great Lakes, a climate like that of the sea-board is found; and proceeding into the region beyond the modifying agency of these inland seas, an excessive climate is again exhibited. Here are then two systems of climate on the same parallels of latitude, that of the ocean and the lakes being characterised as *uniform*, and that of the intervening tract and the region beyond the lakes, as *excessive* climates. As the mean annual temperature presents little variation on the same parallel, the marked difference of climate arises from the unequal distribution of heat among the seasons. In positions remote from large bodies of water, the winters are colder and the summers hotter than in the opposite localities in the same latitude. This is strikingly illustrated by a comparison of the difference between the mean temperature of winter and summer, and the difference between the warmest and coldest month, in the two systems of climate. Let us take, for example, Fort Sullivan, on the coast of Maine, and Fort Snelling in Iowa Territory, the two being nearly in the same latitude. At the former, the difference in the mean temperature of winter and summer is 39°.15, whilst that of the latter is 56°.60; and between the warmest and coldest months, the ratios are respectively 43°.87 and 61°.86. Accordingly, we find too a considerable difference in the mean annual range of the thermometer, which is at Fort Sullivan 104, and at Fort Snelling 119. But another marked distinguishing feature between these two systems of climate, is, the difference between the mean temperature of winter and spring, which is at the former 17°.16, and at the latter 30°.83—a cause to which is owing the sudden development of vernal vegetation in excessive climates.

In Canada the annual ratio of deaths, according to the War-office Returns, is 20 per 1000.

Fevers.—The results, compared with those of Nova Scotia and New Brunswick, exhibit a remarkable prevalence of fevers in Canada. Whilst several thousand cases of intermittent fever are reported in the latter command, scarcely one indigenous case has ever been known in the former. The same contrast is exhibited in the results given by Upper and Lower Canada, the proportion being as 178 to 26. Moreover, it is necessary to bear in mind that the majority of cases in Lower Canada occurred among soldiers who had laboured under the disease or had acquired a predisposi-

tion to it in the upper provinces. We have already referred to the fact that a similar contrast exists between the coast of New England and the lakes.

The Reporter observes that these diseases are said to be comparatively rare wherever the surface is covered with dense forests, even though the ground is wet and marshy. The vicinity of land recently cleared is most subject to them, particularly meadows or open patches of the forest, which, though denuded of trees, have not been brought under cultivation. It would appear, too, that their prevalence is diminishing with the progress of agricultural improvement.

This opinion is corroborated by the experience of the medical staff of the army, as well as that of the civil practitioners in our newly settled regions. From our earliest history, it has been a well known fact that a region partially cultivated is more insalubrious than a wilderness, or a country in the highest state of agricultural improvement, The hunter and the wild borderer suffer less from disease than the actual settler. The diseases of the former, as the surface of the earth, protected from the sun's action by a dense and exuberant vegetation, yields comparatively little noxious effluvia, are mostly of an inflammatory character, resulting from fatigue and exposure; but as soon as the forest begins to fall at the appearance of the permanent settler, who turns up, at the same time, to the action of our intense summer heats, the soil rich in organic remains, the atmosphere becomes infected with terrestrial emanations, which spread on every side disease and death.

Diseases of the Lungs.—As an evidence how little the tendency to consumption is increased either by intensity of cold or sudden atmospherical vicissitudes, the Reporter adduces the ratios per 1000 attacked annually by consumption in Bermuda, Gibraltar, and Canada, the averages being respectively $8\frac{8}{10}$, $6\frac{5}{10}$, and $6\frac{5}{10}$.

"In the two former climates the thermometer rarely falls to the freezing point, and its fluctuations are comparatively trifling; in the latter the cold is often so intense as to freeze mercury, the variations sometimes exceed 50° in the course of a few hours, and the soldier, in passing from his heated guard-room to his night duties in the open air, is not unfrequently exposed to an immediate change of temperature exceeding 100°." p. 29.

Epidemic Cholera.—The proportion of deaths to admissions was nearly one in three. One of the most extraordinary features of this epidemic is, that the ratio of fatality is nearly alike in all the military commands investigated. In both the years (1832 and 1834) when this epidemic prevailed, the native Indians suffered from it to the same extent as the white population. Although their principal remedy consisted in swallowing large quantities of charcoal mixed with lard, yet almost the same proportion recovered as among the white inhabitants of the towns, who possessed every advantage which the aid of medical science could suggest. Unlike the epidemics of yellow fever described, not a single officer died from cholera, and only four were attacked during the first, and three during the second epidemic. This leads to the inference, observes the Reporter, that, though little can be done to ameliorate the character of the disease when allowed to arrive at an advanced stage, yet that a generous diet, regular habits, and the degree of attention which persons in the higher ranks of life are likely to pay to its premonitory stages, have a powerful effect in diminishing their liability to its influence.

In tracing the rise and progress of this disease, nothing is more remarkable than the regularity with which, *on both occasions*, it advanced along the principal channels by which the tide of emigration and of commerce flowed through the country. Along the St. Lawrence and the lakes, with the single exception of Fort George, it may be said to have travelled with post-like regularity. This singular disease pursued the same steady course along the banks of the Ottowa, another of the principal channels of emigration into Canada, as well as up the Richelieu, and along Lake Champlain through the United States to New York, a route which is also frequently taken by emigrants on their arrival in Quebec.

"These circumstances, combined with the fact of several persons having died from the disease on their passage from Ireland, in each of the years when it appeared, led to the belief of its having been imported and subsequently communicated by contagion; various precautionary measures were in consequence adopted to prevent its propagation, and strict quarantine regulations were enforced, both as regards the troops and inhabitants; but, though in some instances these were apparently effectual, in others they proved of little avail, and the contagious nature of the disease was subsequently rendered extremely questionable from the circumstance, that neither the physicians nor those in constant attendance on the sick exhibited any peculiar liability to it." p. 32.

The Reporter next passes under review several classes of diseases, which, notwithstanding they rarely prove fatal, are, in every command, a source of considerable inefficiency, such as rheumatic and venereal affections, abscesses and ulcers, wounds and injuries, diseases of the eyes and the skin, punished, &c.

Rheumatic Affections.—"The first and most striking feature in this comparison is, that in a climate of which the temperature in winter is so low, and liable to such alternations as that of North America, the proportion of rheumatic affections should be less than in the United Kingdom. It is even lower than in the Mediterranean or Bermuda, though there the thermometer rarely falls to the freezing point, and the atmospherical vicissitudes are comparatively trifling. Observations recently made by the medical association of Great Britain on the prevalence of rheumatic affections in different counties of this kingdom have given similar results, and established that these diseases sre less under the influence of atmospheric agency than has generally been supposed." p. 34.

4. *Newfoundland.*—This island lies on the northeast side of the Gulf of St. Lawrence, and adjacent to that part of the American continent termed the coast of Labrador. Its extreme length is 420 miles, and extrame breadth 300; but of this extensive territory the greater part is as yet unexplored. The few tracts visited by Europeans have been found hilly, and sometimes even mountainous, varied by extensive plains covered with grass or low stunted bushes, and intersected by numerous rivers and lakes.

The climate of the southern portion of Newfoundland, it is observed by the Reporter, is similar to that of Nova Scotia, except that the summers are colder, of shorter duration, and liable to more sudden vicissitudes, owing to the melting of the icebergs on the coast, which exerts considerable influence on the temperature; the island has also been long noted for the frequent and dense fogs which prevail along its banks, and often continue during a great part of the summer. None of these agencies, however, seem to operate prejudicially on the health of the inhabitants, among whom the mortality is on a lower scale than in any portion of the American continent.

This favourable view of the climate as regards the native inhabitants, is not, however, confirmed by the extent of mortality among the troops. The returns from these troops do not extend farther back than 1825. Among the veterans, the annual mortality, on an average of 12 years, has been upwards of 41 per 1000, whilst that of the artillery, during the same period, has been only 22 per 1000. The high ratio of the former is ascribed in part to their advanced age, but still more to the effects of long-continued habits of intemperance. Among 100 deaths, from 1825 to 1832, 42 are attributed to the direct effects of drunkenness!

In the section on the extent of *invaliding* among troops in British America, it is shown that the proportion discharged amounts to 19 per 1000 annually, being the average of the Mediterranean stations, and nearly the same as among the dragoon guards and dragoons serving in the United Kingdom. The Reporter having further shown that the ratio per 1000 invalided annually for pulmonic affections, is in British America $3\frac{9}{10}$, Gibraltar $3\frac{9}{10}$, Malta 5, and the Ionian Islands $2\frac{8}{10}$, adds—

"It is thus manifest, that in the mild climate of Malta, one-fifth more are invalided for pulmonic affections than in British America—a sufficient reason, combined with what has previously been stated on the subject, to render extremely questionable the generally received opinions in regard to the influence of temperature in inducing or aggravating these diseases." p. 38.

"In the Mediterranean, the proportion of officers attacked by phthisis annually, has been more than twice as high, and by inflammation of the lungs at least a third higher than in Canada." p. 42.

Influence of Age and Length of Residence on Mortality.—In this section it is shown that mortality increases with the advance of age much more rapidly than in the United Kingdom or Mediterranean. So far as regards the Bermudas, this may partly be accounted for by the circumstance that in warm climates the constitution appears to deteriorate rapidly with the advance of age. This will not, however, account for the same feature being manifested, though in a less striking degree, on the continent of North America.

Deductions from the Preceding Report.—In this section, the Reporter inquires whether there exists in the moral or physical condition of the troops in the Mediterranean and American stations, any difference likely to have influenced the results on which the various comparisons in relation to pulmonary diseases have been founded. We deem it wholly unnecessary to follow him in these details, inasmuch as we believe, and as we hope to demonstrate, that the most of his conclusions are founded in error.

Rheumatism. "The caution necessary to be exercised in attributing to certain peculiarities of climate the prevalence of any class of diseases, is so strikingly exhibited by the proportion of rheumatic affections ascertained to have occurred among the troops in different colonies, that the following abstract will best serve to illustrate our observations on this head:—

	Jamaica.	Nova Scotia and New Brunswick.	Bermuda.	Malta.	Ionian Islands.	Gibraltar.	Canada.	Mauritius.	Windward and Leeward Command.	United Kingdom.	Cape of Good Hope.
Admissions from Rheumatic affections annually per 1000 of mean strength.	29	30	33	34	34½	38	40	46	49	50	57

"Thus we find that in the mild and equable climate of the Mediterranean or the Mauritius, the proportion of rheumatic affections is even greater than in the inclement regions of Nova Scotia and Canada, and that, though some of the provinces of the Cape of Good Hope have occasionally been without rain for several years, these diseases are more frequent in the dry climate of that command, than in the West Indies, where the condition of the atmosphere is as remarkably the reverse; yet have extreme cold and atmospheric vicissitudes, coupled with excess of moisture, been assigned as satisfactory causes for their prevalence." p. 45.

The Reporter next recapitulates evidence to show how inadequate, in many instances, is the supposed influence of emanations from a marshy soil to account for the origin of febrile endemics.

"In the present Report, we find it established that yellow fever of the most aggravated form has repeatedly made its appearance at Ireland Island in the Bermudas, a rocky barren spot only a few hundred yards in breadth, containing no marsh, and with little or no vegetation except a few cedar trees." p. 45.

In these statistics no distinction is made between remittent and yellow fever; and we will here repeat that we are not, in the present state of our knowledge, justified in averring that the same miasm which produces remittent fever can, in its more concentrated state, excite yellow fever; much less are we warranted in saying that yellow fever is of paludal origin.

"All the evidence obtained seems only to warrant the inference that a morbific agency of some kind is occasionally present in the atmosphere, which, under certain circumstances, gives rise to fevers of the remittent and intermittent type; and that, though the vicinity of marshy and swampy ground appears to favour the development of that agency, it does not necessarily prevail in such localities, nor are they by any means essential either to its existence or operation." p. 45.

As the development of the agency producing these fevers requires no doubt a certain concurrence of causes, as heat and moisture, it certainly does not follow that it should "necessarily prevail in such localities;" and, in regard to the question whether a marshy locality is "by any means essential either to its existence or operation," we are decidedly of opinion that the induction which lays intermittent fever to its operation is too strong to be shaken by the exceptions adduced by the Reporter. Such logical refinements will not bear the test of common sense. Were one to attempt to persuade a pioneer of civilization or even a red-skinned Aboriginal, in Florida, Louisiana, or Arkansas, whose experience has taught him that along the margins of streams, lakes, and marshes, he is very subject to intermittent fever, whilst in the adjacent sandy pine woods he is exempt, that there is no connection between the marsh and the fever, he might admire the ingenuity of the reasoning, but would not yield assent against the evidence of his own senses.

Having completed the examination of these documentary reports with the exception of the details in reference to pulmonary diseases, we shall now condense into a tabular abstract the ratios of this class of diseases in each military command, as the West Indies, the United Kingdom, the Mediterranean, and British America. These results are based upon the aggregate mean strength and aggregate of cases and deaths in each command—a method which presents the only legitimate mode of calculation.

Ratio of Pulmonary Diseases.

	Military Commands.	No. of y'rs of Observation.	Aggregate mean Strength.	Ratio per 1000 of the strength annually.							
				Catarrh, Acute and Chronic.		Pneumonia and Pleuritis.		Hæmoptysis and Phthisis Pulmonalis.		All Diseases of the Lungs.	
				Treated	Died	Treated	Died	Treated	Died	Treated	Died
West Indies. White Troops.	Windward and Leeward Command.	20	86,661	75	2	23	1.3	15	7.1	115	10.5
	Jamaica "	20	51,567	54	.1	14	.3	15	6.2	84	7.5
	Bahamas "	20	535	13		6	4	8	2	28	5.6
	Honduras "	20	320	28		6	3	6		41	3.1
	Average.		139,083	67	1.6	19	.9	15	6.8	103	9.3
West Indies. Black troops.	Windward and Leeward Command.	20	40,934	37	2.6	45	3.9	15	9.8	99	16.5
	Jamaica "	20	5,729	12	.5	12	1.3	11	7.5	35	10.3
	Bahamas "	20	7,102	48	.3	25	2.1	9	7	88	9.7
	Honduras "	20	4,356	54	.2	10	.7	12	7	95	8
	Average.		58,121	38	1.9	36	3.3	14	9	91	14.4
United Kingdom.	Dragoon Guards and Dragoons.	7	44,611	122	1.2	16	.8	8	5.6	149	7.7
	Foot Guards.	7	34,538		.2		2.1		11.5		14.1
	Household Cavalry.	7	8,649				.6		7.4		8.1
	West India Depots.	7	23,537		.4		.5		8.7		9.6
	Average.		111,335		.7		1.2		8.2		10.1
Mediterranean.	Gibraltar.	19	60,269	86	.6	42	.9	10	3.6	141	5.3
	Ionian Islands.	20	70,293	48	.4	32	1.2	7	2.9	90	4.6
	Malta.	20	40,826	74	1.1	34	1.1	8	3.7	120	6
	Average.		171,388	68	.6	36	1.1	8	3.4	112	5.2
	Civil population of Malta.	13	1,303,517		.8		.5		1.1		3
British America.	The Bermudas.	29	11,721	77	1.5	38	1.1	11	6.1	126	8.7
	Nova Scotia & New Brunswick.	20	46,442	74	.6	34	1.2	9	4.8	117	6.8
	Upper and Lower Canada.	20	64,280	89	.6	43	1.5	8	4.3	141	6.4
	Average.		122,443	82	.7	39	1.4	9	4.5	131	6.3

Having thus presented a tabular summary of all the results relative to pulmonary diseases, we will be the better enabled to view the subject in its various relations. Before proceeding, however, to test the legitimacy of the inferences deduced, as well as the correctness of the numerical results themselves, it will be necessary, as a preliminary step, to free the question from several difficulties.

The Reporter has assumed England as the *standard of comparison*, by which to test the relative salubrity of other countries in regard to pulmonary diseases. He has consequently adopted a classification of climates based on mere latitude, without reference to the phenomena of temperature arising from physical geography. In the present instance, the impropriety of arranging climates by the test of latitudes is the more apparent from the circumstance that pulmonary diseases, as a class, are peculiarly dependent on climatic characteristics. If then it can be shown that the causes which induce a low ratio of pulmonary affections are little influenced by latitude, will not this standard prove to be a false one? Now, it has been demonstrated by the statistics of the United States Army that in the climates in

which the extremes of temperature are moderated, in which there is little difference between the mean temperature of winter and summer—that pulmonary diseases as a class exhibit a low ratio. So great is the influence of local causes upon temperature that at Edinburgh, Scotland, the difference in the mean temperature of winter and summer is only 17°.90, whilst on the same parallel at Moscow, Russia, it is 56°.32; and in North America, on a parallel 12° farther south, we find this difference between the two seasons to be, at Fort Sullivan on the Atlantic sea-coast, 39°.15, at Fort Snelling in the interior remote from any large body of water 56°.60, and at Fort Vancouver, about 1° farther north, on the western coast of America, 70 miles from the Pacific, only 23°.67. As the range of the thermometer is not greater in England than in Italy, and as the difference in the mean temperature of summer and winter is actually less, a classification of climates based on mere latitude in reference to pulmonary diseases, becomes an actual absurdity; but, as in the British commands investigated, the Reporter had to deal entirely with regions characterized by a mild insular climate, or those in which a low temperature predominates, he had not the means of arriving at truth, presented in the systems of climate pertaining to the United States. We are further told in connection with this subject, that a comparison of the ratio annually attacked out of a given number in different countries, presents the most accurate method of determining the relative agency of climate in the causation of particular diseases, more especially if these investigations extend over a long series of years, and include large masses of individuals of the same profession, the same age, the same habits, and the same diet. Now, if the comparisons, unlike the various British commands, were instituted among the natives of each region, the truth of the remark would be more evident.

Keeping these facts in view, we will be at no loss to reconcile many of the apparent incongruities in regard to the laws of pulmonary diseases inferred by the Reporter of the British statistics. The conclusion that pulmonary diseases as regards the *annual* ratio, are more prevalent in certain *systems* of climate in southern than northern latitudes, is confirmed by the statistics of the United States Army; but when we come to consider the relative influence of the *seasons*, the fallacy of the opinion that it is "*by no means likely that any beneficial influence can be exerted by climate itself*" in pulmonic lesions, becomes at once apparent. That catarrhal diseases, for example, are much under the influence of season and climate, is proved by the following statistical results:—Taking the average of the United States, the ratio of winter is two and a half times higher than that of summer, and the ratio of the class of posts in our northern regions, remote from large bodies of water is nearly four times as high as in the peninsula of East Florida. In the former class is Fort Snelling, whose difference in the mean temperature of summer and winter is 56°.60, and in the latter is Key West with a difference of only 11°.34. Even on the same parallels we find the most marked contrasts. Thus on the coast of New England, where the extremes of temperature are modified, the ratio of catarrhal affections is comparatively low; on the lakes, characterized by similar climatic features, the ratio is somewhat higher; whilst in the excessive climate, in the same latitude, in positions remote from the ocean or the lakes, it is more than twice as high. The connection of these facts with *chronic bronchitis* invests them with more than ordinary importance; for it is in that form of consumption which depends on chronic bronchial in-

flammation that we are justified in the expectation of deriving advantage from change of climate. Even admitting with the Reporter of the British statistics that the ratio of pulmonary diseases is as high in southern as in northern latitudes, it does not militate against the doctrine that benefit will be derived from change of climate in the way of a *winter* residence; for in northern climes, one great object of the pulmonic invalid is to avoid the abrupt transition of the seasons from summer to winter. On the coast of New England, for instance, the ratio of catarrh per 1000 is in the third quarter 36, and in the fourth 85; and consequently the respiratory organs even when normal, are peculiarly susceptible, at this period, to morbid action; but if the pulmonic, at the approach of winter, seeks the climate of East Florida, he will find there, in the fourth quarter, a ratio even lower than that of the third quarter on the coast of New England.

Did space permit, it might be interesting to carry out these views in relation to pneumonia, pleuritis, and phthisis pulmonalis, as elucidated by the statistics of the United States Army. In reference to the last, it will suffice to say that its ratio seems to have no direct relation with the other diseases of this class; for, although much under the influence of season and climate, yet it is still more under the control of other agents. Chronic bronchitis, it is very probable, acknowledges the general law, whilst the deviation is caused by cases of a tubercular nature.

Another important law developed by the statistics of the United States troops is, that, in those climates in which a high or a low temperature predominates, the ratio of pulmonary diseases is lower than in the intervening region characterized by the extremes of both. In regard to pleuritis, pneumonia, and phthisis pulmonalis, it is found to be so in every respect; and, so far as catarrhal diseases are concerned, the law holds good on the coast, Florida and New England having lower ratios than the middle coast. In Europe it has also been ascertained that phthisis pulmonalis prevails less in Sweden and along the Mediterranean countries than in the intervening regions.

With these remarks, we are prepared to consider more in detail the results and deductions of the Reporter, as expressed in the several quotations made during the progress of this review. To enable the reader to do the Reporter the fullest justice in regard to the comparisons instituted between England and the West Indies, we would ask him to re-examine the extracts on pages 434, 439, 440–1, 445, and 446, as well as the tabular abstract on page 466. In addition to the objections already made to England as a standard of comparison, we have now to add that the ratios of that command which gives the *lowest* results are taken as the comparative tests, by which all the deductions in reference to pulmonary diseases become still further vitiated. A glance at the table will show that the ratio of mortality from the class of pulmonary diseases in England varies from $7\frac{7}{16}$ to $4\frac{1}{16}$, the former of which is in all cases assumed as the standard. The high ratio of the foot guards, it is true, is set aside as an "exception," because it appears "*attributable to other causes than the climate of the metropolis;*" but, on the other hand, we find that the comparison is made with the *highest* ratio among the white troops in the West Indies, notwithstanding he thinks it "*not attributable to climate only, but also to some peculiarity from which officers are exempt!*" As the mortality among the enlisted men from this class of diseases is four or five times greater than among the officers, the result cannot be wholly ascribed to

general causes; and, as the same morbid agents may be in operation in the Windward and Leeward Command as among the foot guards, it is unfair to suppress the one and show forth the other. Reasoning from general principles, it was shown that the ratio of pulmonary diseases ought not to be very much higher in England than in the West Indies; and this relation obtains in reality. Taking the aggregate strength and aggregate mortality from diseases of the lungs of all the white troops in the West Indies, and the same of all the commands in England, the result is in favour of the former. In the United Kingdom, the annual mortality per 1000 of strength is $10\frac{1}{10}$, whilst in the West Indies the ratio is only $3\frac{3}{10}$. Contrary to the deductions of the Reporter, it is also seen that the mortality from hæmoptysis and phthisis pulmonalis, as well as from pleuritis and pneumonia, is lower in the latter. The average of pulmonary cases under treatment is found, likewise, much lower in the West Indies, the annual ratio per 1000 being as 103 to 149, notwithstanding the latter is the ratio of the dragoon guards and dragoons, which give the lowest mortality, it being impracticable to determine from the tables the ratio of cases treated in the other commands.

It is thus seen that by assuming the *highest* average in one command and the *lowest* in another, unwarranted conclusions have been deduced. Were even the mortality from pulmonary diseases in the West Indies higher than in England, it would not be surprising; for here are men from a northern clime exposed, through all seasons, to the influence of a high temperature; and as this mortality arises chiefly from phthisis pulmonalis, which the Reporter maintains to be of tubercular origin, the disease is doubtless often induced by the deterioration which the constitution undergoes, especially in cases of intemperate habits, from repeated attacks of febrile and chronic intestinal affections—an opinion warranted by the statistics of the United States army. This may be regarded as a prolific source of pulmonary consumption among the British troops in the hot climate of the West Indies. An English soldier sent to these islands, enlisted for life, with no hope of escape but in the grave—labouring under the influence of the depressing passions, as is manifest from the extremely high ratio of suicides—reckless in his habits, both moral and physical—and exposed to the unceasing agency of those morbific causes by which the vital energies are gradually exhausted—is peculiarly liable, especially when predisposed, to the development of this disease. This view is corroborated by the fact that officers in the West Indies—a class of men animated by the opposite feelings—enjoy a comparative exemption from this malady, which is a circumstance the more remarkable when it is considered how carefully recruits, more especially as regards the chest, are examined, whilst officers undergo no personal examination.

The prevailing idea in regard to the advantages of acclimatization is disproved by statistical investigations, not only in the West Indies, but all other climates in which British troops are stationed.* As no length of

* "Noxious agents or causes of mortality," says a late writer, (On the enlisting, discharging, and pensioning of soldiers. By Henry Marshall, F. R. S. E., deputy inspector-general of army hospitals,) "exist in all countries, and these causes of mortality will have greater or less influence upon the human body, in proportion to its conservative powers. The rate of mortality among a body of troops is therefore, in some degree, a test of the existence, and a measure of the power of these destructive agents. It has long been supposed that the conservative powers of the constitution acquired

residence is of any avail in diminishing the liability to the malignant diseases of the West Indies, it follows that the causes assumed as exercising a powerful agency in the production of phthisis pulmonalis, are uniformly progressive in their fatal tendency. Labouring for years under the most insidious forms of disease, the system becomes less fitted to resist morbific agents than that of him who brings to this climate the full health and vigour of an unimpaired northern constitution. The conclusion of the Reporter that the great susceptibility of troops to consumption in the West Indies, "is not attributable to climate only, but also to some peculiarity in their condition from which officers are exempt," finds, it is believed, an adequate explanation in the operation of the causes here detailed.

That the West Indies offer no advantages as a winter residence to the pulmonary invalid, may, at first view, be inferred; but this is more apparent than real, inasmuch as it has been shown that these diseases, as a class, are as much under the influence of the seasons as intermittent fever, and that consequently one great object of the pulmonic invalid in seeking a southern clime as a winter residence, is to avoid the abrupt transition of summer into winter. That tubercular consumption might be hastened to its fatal issue by a continuous residence in these islands is probable, but this objection has no reference to a mere *winter* residence. Notwithstanding the Reporter directs attention to "the baneful influence of the climate of the West Indies in accelerating the progress of consumption," it is found that the annual ratio of mortality from hæmoptysis and phthisis pulmonalis is only $6\frac{8}{10}$ per 1000, exclusive of those sent home as invalids, whilst that of the United Kingdom, is $8\frac{2}{10}$. Now could we institute a comparison between the civil population of England and the native white inhabitants of the West Indies, the comparative results might be deemed correct.

Next in order come the Mediterranean Commands. In *Gibraltar*, notwithstanding the unfavourable views taken of this climate by the Reporter, (see *ante* p. 449,) the annual ratio of mortality from all pulmonary diseases is only $5\frac{3}{10}$ per 1000, which is little more than half the average presented in the United Kingdom. From hæmoptysis and phthisis pulmonalis, the mortality in the former is $3\frac{6}{10}$, and in the latter $8\frac{2}{10}$; but as many of the consumptive patients were invalided the Reporter thinks the ratio for Gibraltar too low. In regard to the correctness of the opinion that inflammation of the lungs is "much more" frequent at Gibraltar than in England, we are unable to judge, as the Reporter in his tabular abstracts of the troops at home, with the exception of the dragoon guards and dragoons, does not give the number treated; but one fact appears from our table, p. 466, viz. that the mortality from this cause is one third less than in England. The average of all pulmonary cases treated at Gibraltar is also lower, even taking that of the dragoon guards and dragoons, the *lowest* ratio, as the standard of comparison.

The island of *Malta*, notwithstanding the Reporter thinks it "by no means favourable to persons predisposed to" pulmonary diseases, (*ante* p. 451

strength by length of residence in unhealthy climates, but this inference or conjecture derives no confirmation from statistical investigations." In Jamaica, for example, a station in which the strength is usually kept up by young recruits varying from 19 to 21 years of age—the annual ratio of mortality among soldiers between the ages of 18 and 25, is 70 per 1000, between 25 and 33, 107, between 33 and 40, 131, and between 40 and 50, 128 per 1000. This is the case "not only in regard to Jamaica," adds the same writer, "but also in regard to the Windward and Leeward Island station, and uniformly in all the other stations, both in the temperate and torrid zones."

-2,) presents an annual ratio of mortality by this class of 6 per 1000, whilst that of England is $10\frac{1}{10}$. From hæmoptysis and phthisis pulmonalis, the mortality is, $3\frac{7}{10}$, which is not one half as high as in England; but in these comparisons, some allowances must be made for the invaliding of consumptive patients. From pleuritis and pneumonia, the mortality is also higher in England, notwithstanding the Reporter asserts "*that in the mild climate of Malta they are twice as fatal.*" (*Ante* p. 455–6.)

The Reporter next inquires into the extent of pulmonary diseases among the civil population of Malta—an investigation which leads him to the following conclusion:—"Nor is the fatal influence of diseases of the lungs confined to the troops alone; it extends in a *corresponding degree* to the inhabitants." As this deduction is wholly unwarranted, it again becomes our duty to expose the fallacy of his reasoning. The average population is 100,270, and the tabular abstract extends over a period of 13 years. From diseases of the lungs, the aggregate of deaths is 6664, among which are reported 1363 of phthisis pulmonalis, and 2786 of consumption. The ratio of deaths from this class of diseases among all ages, is, therefore, about $5\frac{1}{8}$ per 1000 of the population. This ratio then, according to the Reporter's own calculation, is only half as high as in England; but it will be observed that deaths are reported by the Maltese medical practitioners under the different heads of consumption and phthisis pulmonalis. "The former," the Reporter says, "is understood principally to refer to that class of consumptive cases more generally designated as *marasmus*, which term has been adopted in the returns since 1831. * * * They are understood to have occurred *principally among children and old persons*, and many of them may not have been directly attributable to diseases of the lungs, though, as we possess no means of distinguishing the *exceptions*, it has become necessary to include them under that class." The *exceptions*, in this case, evidently constitute the rule. In his anxiety to establish his favourite views, the Reporter is not content to include under the class of diseases of the lungs the cases of marasmus reported as consumption prior to 1831, but he also takes those *reported as marasmus* subsequently to that period. Hence it is no ways surprising that Sir Andrew Halliday, Inspector-General of Hospitals, deplores the strange fact that the duty of collating these statistics should have been "delegated to a captain in the army destitute of professional knowledge." Although we are free to concede that Major Tulloch has performed his task with great ability, always excepting those deductions which involve medical opinions, yet we are not the less convinced that the old adage—"ne sutor ultra crepidam"—is a good one.

But to return. Excluding, therefore, the 2786 fatal cases of marasmus, or consumption, which "*occurred principally among children and old persons*," the ratio of mortality from hæmoptysis and phthisis pulmonalis is reduced to $1\frac{1}{10}$, (about one-eighth of the average in England,) and that from all diseases of the lungs, to 3 per 1000. The fatality of pleuritis and pneumonia is not half as great as among the troops. It is thus seen that the mortality from all diseases of the lungs among the civil population, contrary to the deduction of the Reporter, that it is in a "corresponding degree," is not half as high as among the troops, and not one-third as great as the average of the several commands in the United Kingdom. But as truth, it is said, never lies in extremes, so it may be well to take the ratio of hæmoptysis and phthisis pulmonalis, including *one-half*

of the cases of marasmus. By this computation, the ratio is $2\frac{2}{10}$, which is much lower than among the military, and only one-fourth of the average in England. These results find corroboration in the fact that among the "Malta Fencibles"—a corps composed entirely of natives, the annual ratio of mortality from all causes is only 9 per 1000, being less than half as high as that of the foreign troops.

The Ionian Islands.—This group, remarkable for tempestuous weather and sudden and frequent alternations of temperature, gives a lower ratio than Malta or Gibraltar, (*ante* p. 454.) The mortality from all diseases of the lungs is $4\frac{6}{10}$ per 1000, and including the invalids sent to Malta, $4\frac{8}{10}$—a mean not half as high as that of the United Kingdom. The ratio of cases treated is also much higher in England, aye, even in the dragoon guards and dragoons, being as 149 to 90. These results, considering the contrast in the climate of Malta and the Ionian islands, seem to corroborate the laws established by the statistics of the United States army, so far as regards mere variableness of temperature.

This view of the results of the several Mediterranean commands leads to conclusions diametrically adverse to those deduced by the Reporter, as exhibited in the quotations on pages 455–6. We are wholly at a loss to perceive "the interesting fact that, except the Ionian Islands, the liability of troops to consumption in the Mediterranean stations is even greater than in the United Kingdom," or that, if due allowance be made, "the proportion of deaths also, among those attacked by consumption, will be found fully as high." On the contrary, we find, (see table, p. 466,) that excluding those invalided, of which the mortality is unknown, the ratio of deaths from hæmoptysis and phthisis pulmonalis, in the Mediterranean stations per 1000, is $3\frac{4}{10}$, and the mortality from all the diseases of the lungs, $5\frac{2}{10}$; whilst in England, the former is $8\frac{2}{10}$, and the latter $10\frac{1}{10}$. But as the ratio invalided is not more than 4 per 1000 annually, it follows that if all died, still the average is lower in the Mediterranean. We are consequently wholly unable to discover the "striking contradiction to the popular idea," more especially when we call to mind the fact that these ratios are exceedingly low among the Maltese natives. "That inflammatory affections of the lungs are nearly twice as prevalent" in the Mediterranean as in England, and that in the "mild climate of Malta they are also twice as fatal," is a deduction that we have completely disproved; and in respect to the civil population of Malta, we have in truth more than reversed the position. Instead, therefore, of its "being by no means likely that any beneficial influence can be exerted by the climate itself" in pulmonary diseases, it is satisfactorily shown that it is even advantageous as a continuous residence. To the pulmonic invalid from the excessive climates of the middle regions of Europe, who seeks this region merely as a winter residence, the beneficial results must consequently be incalculable. Admitting even the correctness of the Reporter's results, they would not militate against the laws established in relation to the relative influence of the seasons.

The last command investigated is British America. In the *Bermudas*, lying about 600 miles east of South Carolina, the annual ratio of mortality from diseases of the lungs is $7\frac{3}{16}$ per 1000. This average, though higher than in the Mediterranean stations, is lower than in England. Notwithstanding the uniformity of temperature which obtains in this group of islands, the summers are exceedingly hot, even more so than in the West Indies.

In Nova Scotia and New Brunswick, as well as Upper and Lower Canada, the ratio of admissions and deaths from diseases of the lungs is considerably lower than in the United Kingdom, (*ante* p. 459, 462, and 464.) As this is a region in which a low temperature prevails, the result is no ways surprising; for notwithstanding in Canada, "the variation sometimes exceeds 50° in the course of a few hours," the law that pulmonary diseases are less prevalent in those regions in which a high or a low temperature predominates than in the intervening region characterized by the extremes of both, has been abundantly established in the systems of climate pertaining to the United States. In the harmony of these results, we perceive the order which reigns throughout nature; and these laws find confirmation in Europe, inasmuch as the returns of Sweden do not exhibit a higher ratio of pulmonary diseases than the climate of the Mediterranean. It has also been shown by statistical facts, by M. Andral, that phthisis pulmonalis is more prevalent in the middle regions of Europe than at either extreme.

The more recent statistical reports of Major Tulloch "On the sickness, mortality, and invaliding among the troops in Western Africa, St. Helena, the Cape of Good Hope, and the Mauritius," will not now be noticed; but we may add that the results in regard to pulmonary diseases afford no evidence corroborative of the Reporter's favourite views. As all these commands belong to the class of mild or uniform climates, the results are much in favour of southern latitudes; for whilst in England, the annual mortality from all diseases of the lungs per 1000 is $10\frac{1}{10}$, among the troops on the western coast of Africa, it is $4\frac{9}{10}$, in St. Helena $3\frac{2}{10}$, and at the Cape of Good Hope $3\frac{9}{10}$. At the Mauritius, the average is nearly twice as high as at the Cape of Good Hope; but as the ratio of pulmonary cases treated in the two commands is nearly the same, the great source of mortality in the former arising from consumption, we have another evidence of the fact that the ratio of phthisis pulmonalis in general and the other diseases of the lungs have no apparent relation. We are also told that "among 71,850 native troops serving in the Madras Presidency, the deaths by every description of disease of the lungs did not, on the average of five years, exceed *one per thousand* of the strength annually." This ratio, which is only one-tenth as high as in Great Britain, may be considered, unlike that of the island of Malta, a fair standard of mortality from pulmonary diseases among native troops.

It is thus seen that the conclusion of the Reporter, that the class of pulmonary diseases is more prevalent and fatal in southern than northern latitudes, is the result of hasty generalization, or rather that it has arisen from a classification of climates on mere latitude without reference to the phenomena of temperature induced by local causes. Although the Reporter has, in some measure, set the world right in regard to a *theoretical* error, he has unfortunately, at the same time, led it into a *practical* one. His first error was assuming the climate of England as the standard of comparison—the second, comparing the *lowest* average in one command with the *highest* in another—and the third, basing his deductions on the *annual* results without reference to the relative influence of the *seasons*. We have devoted the more attention to this subject in consideration of its importance to the pulmonary invalid, and from the conviction that the evil influence of false doctrines bears a direct ratio to the character of the authority whence it emanates. S. F.

BIBLIOGRAPHICAL NOTICES.

ART. XI.—*The Library of Practical Medicine—A System of Practical Medicine, comprised in a series of Original Dissertations.* Arranged and edited by ALEXANDER TWEEDIE, M. D., F. R. S., &c. &c. *Diseases of the Organs of Respiration.* 8vo., pp. 575. Philadelphia: Lea & Blanchard, 1841.

THE subjects embraced in the volume before us, which forms the third of the Library of Practical Medicine, are treated in a far more elaborate manner, than those of either of the two preceding volumes. This, while it may in some slight degree detract from its usefulness as a mere text book, renders it unquestionably a more valuable acquisition to the library of the practising physician. The diseases of which it treats are highly important; as well from the frequency of their occurrence throughout a large portion of the United States, as from their very serious character under all circumstances, but more especially when neglected or mismanaged in their earlier stages; there are few, likewise, in relation to a correct acquaintance with the pathology, diagnosis and proper therapeutical management of which, greater advances have been made of late years.

We feel no disposition to overrate, in the least degree, the merits of the present work—we are convinced, however, that all who will examine it with care, will agree with us in pronouncing it one of the most complete and accurate summaries of the present state of medical knowledge in reference to the pathology and treatment of the affections of the respiratory organs and of the more prominent diseases of the heart, that has yet appeared—and one better calculated to convey to every class of practitioners, exact and positive information on these important topics, than any of the systems of practical medicine in common use.

The account of the diseases of the respiratory system, with the exception of influenza and asphyxia, is by Dr. Williams of the London University; that of the diseases of the heart is contributed exclusively by Dr. Joy of Dublin.

The former of these gentlemen is already very favourably known to the medical public, by his former valuable publications on the diseases of which he here treats, and by the attention he has paid to the investigation of the physical signs of the affections of the thoracic organs generally—and although the name of Dr. Joy may be less familiar to our readers, he has proved himself fully competent to the task which he has undertaken—by a perfect familiarity with the best authorities—great discrimination in the selection of his facts, and no trifling skill in their exposition and arrangement.

Introductory to the special consideration of the diseases of the organs of respiration, we are presented with a very excellent and perspicuous account of the means of diagnosis in the affections of the lungs;—1st, By the examination of the chest through its physical properties, and 2d, by its examination through the vital properties or functions of its organs. Both sets of signs thus derived —the physical and vital—Dr. Williams very properly remarks, have their value; and he has taken especial care to point out the modes of appreciating each in the study and treatment of the special diseases—to show, as far as possible, their relative value, by examining them more fundamentally than has generally been done—and while due respect is paid to authentic records of experience, of whatever kind, to make them still more profitable and instructive by careful analysis and generalization.

The various means of examining the physical condition of the chest, whether by vision, tact or hearing, are described, though concisely, yet with great clear-

ness and accuracy, and their comparative value carefully noted; while an able analysis is given of the several vital or general symptoms of disease of the lungs, with the view to determine their nature and varieties, and their value in pointing out the seat, character, extent, and proper treatment of the various lesions of the pulmonary organs.

The remarks of Dr. Williams, in relation to the several vital or physiological symptoms—dyspnœa, cough, expectoration and pain—immediately dependent upon certain morbid conditions of the respiratory apparatus, as well as the short notice he has presented of the nature and value of the symptoms, which disease of this apparatus develops in the functions of other organs, are in the highest degree interesting, and afford, in conjunction with his analysis of the physical signs, a very appropriate and necessary introduction to the study of the individual diseases of the lungs and their appendages. The ready and correct appreciation of the diagnostic phenomena of which they cannot fail very materially to facilitate.

The concluding observations of the author, on the subject of diagnosis, are particularly worthy of attention—indicating, in general terms, the exact relative value of the physical and vital phenomena of pulmonary disease, and offering a few brief, but important hints as to the proper method of investigating its seat, nature and extent.

"On taking a rational review of the general symptoms in comparison with the physical signs, we must come to the conclusion that as diagnostic means, the general symptoms fall far short of the physical signs. But it is not to be supposed that, because the general symptoms are often comparatively of little aid in diagnosis, we are to neglect the study of them. They are almost always of great importance in prognosis and practice. The physical signs more surely show how the pectoral organs suffer; but having discovered this, to the general symptoms we must look for how the system suffers; and as the symptom often closely sympathizes with the injured organ, we may through them often watch the first turns of the disease, before the change in the organ becomes physically appreciable. In the general symptoms, we seek for those *critical* phenomena, which, although sometimes deceptive, yet generally announce the tendency of the disease to one or other mode of termination. In them we study the vital forces and properties with which nature works, and the signs of what nature can do; and in our method of treatment these become the standards to which we direct, and by which we modify our remedies. When we treat a patient with peripneumony or catarrh, we do not apply our remedies merely to the local lesions, inflamed vessels, or a discharging membrane; we study the system at large, we examine other functions through the general symptoms, and we direct our treatment with due reference to indications from all these several sources. We see, then, that the mere stethoscopist is but ill fitted to practise medicine. He may justly boast of his skill in diagnosis; his place of triumph will be the dissecting room, where he can show the lesions that he had detected, but his practice at the bed side will be unsuccessful in proportion as local lesions vary in their general relations, and in the conditions of the constitution, or of other functions that may accompany them. The judicious physician will not omit to study the condition of the vital properties which are exhibited in the general symptoms, as well as the local physical changes which have been already produced, and whilst he chiefly confides in the physical signs to indicate and measure the present local lesions, he carefully watches, in the general symptoms, the tendencies of those properties and functions which are capable of increasing or modifying these lesions, and are equally liable to be affected by them. The general symptoms being less intelligible and certain than the physical signs, need more experience to enable us to appreciate them; but we have found that even these also may be *rationally* studied, and may derive a light from a knowledge of physiology and the physical signs, which experience alone could never throw on them."

The whole of this very excellent introductory section will be found replete with valuable instruction by the young and inexperienced practitioner, while

even those who are ranked among the elders of the profession, cannot fail to derive from it many useful practical hints illustrative or confirmatory of their own experience.

The first of the special diseases of the respiratory organs treated of is Laryngitis, in its acute and chronic forms. The description of this affection is very ably drawn up, and the results of careful observation, in relation to its causes and character, are given with great clearness and accuracy.

In regard to the treatment of Laryngitis, in its acute form, Dr. Williams lays down three leading indications: "1. To prevent effusion by reducing inflammatory action. 2. Effusion having taken place, to prevent the obstruction which it causes to respiration from producing mortal injury to the functions. 3. To promote the removal of the effused matter."

"Laryngitis," he remarks, "destroys life, not by the extent or the vitality of the organ which it occupies, but by closing as it were the door of the breathing apparatus; by opening another door, we render the disease comparatively trivial, and it may then be deliberately attacked by mercurial and other remedies, or, if slighter, even be allowed to run its course, which commonly ends in muco-purulent secretion. When the operation has been delayed until asphyxia approaches, it will have less chance of success, but should still be tried; for a very few instances are on record where it succeeded at almost the last extremity."

We are aware that by Baillie, Cheyne and others, the operation of bronchotomy has been recommended in cases of Laryngeal inflammation, in which other remedies have failed to afford relief, and that some of the surgical writers urge its early performance, as soon, Mr. Lawrence directs, as the symptoms enable us to determine the nature of the disease. But we are not convinced that the results of general experience are so decidedly in favour of the efficacy of the operation in cases of Laryngitis, performed under the most favourable circumstances, as to warrant the strong terms in which its good effects are laid down by our author. It is certain that little benefit can be expected from bronchotomy in this disease, when too long delayed, but even when resorted to at the period indicated by Dr. Williams, it will very often be found to afford only temporary relief.

The account of the chronic form of laryngitis, its symptoms, pathology and treatment, is full and interesting. In a note by the American editor, appended to the chapter, the interesting fact of the relation of this form of laryngeal inflammation to pulmonary phthisis, either as a cause of the latter, as a concurrent affection, or as a mere secondary lesion, occurring long after phthisis has set in, is concisely pointed out.

Tracheitis, or croup, is described with great accuracy, and the treatment which experience has shown to be the best adapted to arrest its progress, fully and clearly detailed. In regard to the pathology of croup, we entirely agree with Dr. Williams, that the view entertained by him, is that which, in the present state of our knowledge, seems most tenable, and which best comports with the whole history of the disease and the effects of remedies on it.

"The pathological history of Croup," he remarks, "is quite intelligible. The inflammation may commence at first in the submucous tissue, or it may have been first catarrhal, in which very common case, catarrhal symptoms precede those of croup. The inflammation immediately causes increased sensibility of the contractile fibres, and interstitial effusion in the lining of the trachea and larynx; hence results the constriction, partly spasmodic, partly from swelling of the air tubes; and hence the croupy inspiration and cough, and the hoarseness. Afterwards lymph is poured out in a liquid state, and becoming concrete, forms the false membrane, another cause of obstruction to the passage of the air, both directly by its bulk, and also by the spasmodic contraction which its presence causes in the muscular fibres of the tube. The latter cause acts especially where the false membrane reaches to the larynx, and excites its very irritable muscles; in such cases, the paroxysms of dyspnœa and cough are frightfully severe and suffocating. The share which spasm has in causing the dyspnœa may be inferred from the fact, that in no case have the air passages

been found so much blocked by the albuminous secretion as to account for the amount of the obstruction; and in many cases the constriction has appeared greatest, where little or no exudation was found after death. It must not be forgotten, however, that œdematous swelling, like that of erysipelas, may disappear after death. The separation of the concrete matter from the tube, and the prevention of its becoming permanently adherent and organized, is doubtless owing to the mucous secretion and the continued motions of the tube. In cases where the albuminous effusion is less plastic, or the follicular mucous secretion more abundant, the matter may be liquid and purulent, and this generally takes place in the bronchitic variety. The collapse which takes place towards the fatal termination of croup is, like that in bronchitis, to be ascribed to the imperfect state of the function of respiration, and the consequent injurious effect on the vital powers."

A short but highly interesting account is presented of the Laryngismus Stridulus, or spasmodic croup of infants. This affection is of more frequent occurrence than is generally supposed, while its true character is often mistaken by parents as well as physicians. In many cases it is an affection, it is true, of little moment, depending upon some transient irritation which has been reflected upon the constrictor muscles of the glottis; it, nevertheless, in every instance, claims the serious attention of the practitioner, from the fact of its being occasionally the forerunner of violent convulsions, or some other formidable symptom of cerebral disease. A brief notice of the principal facts known in relation to its pathology, will be found in the chapter before us, together with a judicious summary of the remedies to be employed in order to prevent a recurrence of the paroxysms.

Under the head of Catarrhal inflammations, are considered the ordinary forms of acute catarrh, coryza and mild bronchitis. For the removal of these forms of disease, which are particularly interesting from their extreme frequency, particularly in situations marked by great variableness in the atmospherical temperature, Dr. Williams strongly recommends the simple abstinence from all kinds of liquid. This plan of treating acute catarrh, originated with that gentleman, who states that he has practised it in his own person, for the last twelve years, with such success, that colds and coughs that used to continue for several weeks, have been generally cured in two or three days.

"It is very essential for the success of this plan of treatment," Dr. W. remarks, "that it should be applied in the early irritative stage of the complaint, and it is most effectual when the catarrh affects chiefly the nasal membrane.

"If there be any fever, and especially if the state of the bowels require it, an aperient, with an antimonial, should be given; for this favours that free state of the secretions on which, as we have seen, the efficacy of the dry plan depends. In milder cases, this is not necessary. For similar reasons, it is desirable that the solid food be not of a too rich or heating kind; for this undiluted by liquid, might be apt to disagree. Bread, or any consistent farinaceous food, with a little butter, vegetables, white fish, white or gelatinous meats, light puddings, and dried fruits, are suitable articles for a dry diet. Although a total abstinence from liquids is the most effectual, yet, taking about a tablespoonful of tea or milk, with breakfast and the evening meal, and a wineglass full of water on going to bed, does not prevent the success of the plan, whilst it diminishes its discomfort. But the suffering from this voluntary privation is trifling in comparison with that from a severe cold; in fact, except with those who are habitually thirsty, it is rather negative than positive, arising from the imperfect enjoyment of eating without drinking. A great advantage of this plan is, that it does not interfere with common active pursuits, and needs no nursing or confinement. In fact, if care be taken to prevent the surface from being chilled, exercise in the open air promotes the success of the plan, by favouring the natural secretions. The time necessary to effect a cure by the dry plan will vary in different individuals, according to the present quantity of their circulating fluid, the activity of their secretions, and the intensity of the catarrhal disease; and also, somewhat according to the hygrometric state of the air, longer time being always re-

quired when the weather is cold and damp; on the average, forty-eight hours of abstinence will be sufficient. We have known thirty-six hours enough; but some severe and obstinate cases require three days. The period may generally be somewhat shortened by exercise and warm clothing, or lying in bed, or by commencing with a purgative, or by any other dry means of increasing the natural secretions. The cure is not complete till all stuffing is gone, and nothing but a consistent mucus is formed, without irritation in the nasal or bronchial passages."

The account of the acute and chronic forms of bronchitis, of bronchorrhœa, or the pituitous catarrh of Laennec, and of bronchial congestion or congestive asthma, are sufficiently full and accurate, presenting a very able and interesting exposition of the present state of our knowledge in relation to their pathology and treatment.

The ensuing chapters are devoted to a consideration of spasmodic asthma and atonic or paralytic dyspnœa, hooping cough and neuralgia or morbid sensibility of the air cells—diseases, which, according to Dr. W. depend upon a morbid defect or excess in the operation of the nervous and muscular fibres of the air tubes. Spasmodic asthma, Dr. W. attributes to a spasmodic contraction of the circular fibres of the bronchi—of a purely nervous character, or, as is more generally the case, associated with a congested state of the bronchial vessels, ending in secretion. The spasmodic contraction of the bronchi being commonly tonic or permanent, but increased at intervals, thus inducing the paroxysmal augmentation of the disease. The characteristic phenomena of this form of dyspnœa are clearly defined, and a satisfactory account given of the remedies, by which it has been found to be most successfully combatted.

Of that form of dyspnœa which arises from defective contractility of the bronchial tubes, in consequence of weakness or paralysis of their circular fibres, a very short notice is here given, the subject being again noticed under the head of dilated bronchi and air cells.

Hooping cough, the pathology of which has given rise to so much discussion, Dr. W. believes to originate in a specific irritation (almost always inflammatory at first) of the lining membrane of the upper portions of the air passages.

"This irritation is, in the first stage, constant, and accompanied with cough and expectoration, like those of common inflammatory catarrh—but in the second stage it peculiarly increases the irritability of the laryngeal constrictor and bronchial muscles, and of the nerves which excite the contractions of these, as well as of the expiratory muscles, which are sympathetically associated with them—those in fact which are concerned in the act of coughing. The peculiar cough of pertussis, resembles that excited by a foreign body directly irritating the glottis; in fact it is properly called *pertussis*, for it consists of an exaggeration of all the actions of an ordinary cough and of nothing more; and there is no more reason for seeking its cause in the brain or spinal marrow, than there is for referring excessive vomiting or dysenteric straining to this seat. It is unnecessary to go further than the respiratory apparatus for an explanation of the phenomena of hooping cough. The irritation which at first extends to the vessels and is more constant, becomes afterwards purely nervous, and like other local nervous affections, such as neuralgia, spasms, nervous colic, &c. manifests its effects only occasionally, perhaps under the influence of some additional exciting cause. The various complications which so much increase the danger of hooping cough, we would regard chiefly as the effects of the violent cough, sometimes assisted by predispositions to particular diseases or by co-operating causes. Any one who has witnessed the severe paroxysms of hooping cough, can scarcely wonder that it may produce in the head, in the lungs and in the abdomen, serious congestions, which previous tendencies or additional exciting causes, may readily convert into inflammation and its effects—hydrocephalus, pneumonia and intestinal disease."

Dr. W. considers that there is as much evidence in favour of the infectious properties of this as there is of any other disease—a proposition, to the accuracy of which, we can by no means accede.

A concise notice follows of neuralgia and the several structural lesions of the air tubes—as full perhaps as the present state of our knowledge in relation to these affections will permit.

A very elaborate exposition is given of the pathological history, symptoms and signs of acute and chronic pleurisy—of empyema, its phenomena and modes of termination, and of the treatment of the disease in its acute and chronic forms, and of the purulent effusion into the cavity of the pleura, consequent upon the latter. In a note appended by the American editor, the connection of pleurisy with tuberculous diseases of the lungs, and of the pleura itself, is pointed out. In this chapter, the reader will find all the information necessary to lead him to a correct knowledge of the character of pleuritic inflammation—of the phenomena, as well vital as physical, which denote its presence, extent and progress, and of the remedial measures appropriate to its several stages.

The same remark may be made also, in reference to the several chapters which treat of the proper pulmonary affections—pneumonia, pulmonary œdema, dilatation of the air cells, or pulmonary emphysema, and pulmonary consumption, with the two additional chapters contributed by the American editor, the one on pneumonia of children, and the other on gangrene of the lungs. This portion of the work presents, probably, one of the best compendiums of the present state of knowledge in relation to the pathology, diagnostic signs, and therapeutical management of the diseases enumerated, whether for the use of the student and the young practitioner, or to refresh the memories, and improve the knowledge of such, as from the extent of their engagements, the remoteness of their situation, or their contracted means, are unable to consult the various original sources from which the facts comprised in the chapters before us, have been carefully and judiciously selected.

It would be impossible for us, even were such a course expedient, so far to extend the present notice, as would be necessary, in order to present a satisfactory view of the more important and interesting features of the summary before us. Well persuaded that the work itself will shortly find a place in the libraries of most of our readers, we shall content ourselves with merely directing their attention to the very clear and satisfactory account given by Dr. Williams, of the anatomical character of pneumonia, and his judicious remarks in relation to the proper treatment of its several forms and stages—to the concise, but excellent account presented by Dr. Gerhard, of the character and treatment of pneumonic inflammation in children, and to the interesting observations of the same gentleman, on gangrene of the lungs—especially that resulting immediately from a vitiated condition of the fluids.

The chapter on tuberculous disease of the lungs, or pulmonary consumption, which occupies upwards of fifty-four pages, is one of the most elaborate in the volume. It comprises an account of all those forms of disease of the lungs which arise from the formation of tuberculous matter, or of depositions and indurations which are allied to it, in the substance of these organs, and exhibits a complete and masterly exposition of every fact of importance in regard to their pathology, diagnosis, etiology, treatment and prevention. We are acquainted with no source from which a more correct general view may be derived, of all that is known respecting the character, causes and phenomena of these insidious and unmanageable forms of disease, and the remedies which experience has found to be the most effectual for their amelioration or removal.

After a brief chapter on malignant growths in the lungs, and one still shorter on diseases of the bronchial glands, there follows a tolerably extended account, by Dr. Thompson, of Influenza. No reason is given for the separation of this disease from the catarrhal affections, with which it is so closely related. Agreeably to Dr. T.'s own showing, it differs from bronchitis only in the latter being generally induced by atmospheric changes, and attacking the predisposed, while the influenza has comparatively little reference to changes of weather, affects all individuals nearly equally, and is attended with more local pain and general debility than is proportionate to the severity of the catarrhal symptoms.

The following extract exhibits the views entertained by Dr. T. as to the real nature of the disease:—

"In the few cases of death which have occurred from simple influenza, the following are the chief appearances which have been observed:—The mucous membrane of the larynx and bronchi has been found of a deep red colour, flakes of lymph have been sometimes observed on the chordæ vocales and in the ventricles, and the trachea has been injected and covered with glassy looking mucus; the lungs surcharged with serous and mucous fluid, and having portions of their lower lobes engorged and sometimes consolidated.

"The danger, in extreme cases of influenza, appears to arise from an excess of mucus, preventing the due arterialization of the blood. The difficulty and rapidity of respiration are, however, out of all proportion to the quantity of secretion, or even to the amount of inflammation, and the dyspnœa is sometimes intermittent; and this circumstance cannot easily be explained, except by supposing that the cause of the disease must operate, by producing an impression on the vital energy of the lungs, analogous to that occasioned by cutting the nervus vagus: and we may reasonably conjecture that influenza depends on an influence exerted on the nervous system, especially on that part of it having most relation to the bronchial mucous membrane, tending to elicit any latent predisposition to disease, and modified in its character by varieties of constitution, as well as by peculiarities of climate and other external conditions.

"This opinion derives support from the liability, so frequent in this complaint, to derangement in a great variety of organs, as well as from the occasional occurrence of inflammation of the spinal chord, and of inflammation or other affections of the brain. The effects of such a shock thus communicated to the nervous system, may be expected to develope themselves in the weakest organ, and to vary according to collateral circumstances. Thus, in the same epidemic, one patient will suffer from meningitis, another from enteritis, a third from rheumatic affections. If a sudden increase of temperature succeed to frost or snow, pneumonia will frequently be found associated with the complaint, whilst exposure to fatigue and mental anxiety will increase the liability to erysipelatous complications."

We have neither space nor inclination to enter into an examination of how far these views are borne out by the leading phenomena of the disease, and the circumstances under which it has been found ordinarily to prevail as an epidemic. They are at least plausible, notwithstanding they afford us little or no assistance in determining the proper measures to be pursued for the prevention or cure of the disease.

In the chapter before us will be found a very accurate description of influenza and of its appropriate treatment, together with a sketch of its principal visitations, and an interesting inquiry into the probable sources of the epidemic.

The consideration of the diseases of the respiratory organs is concluded by an able and very complete account of asphyxia. The subject is fully treated in all its important bearings, by Dr. Carpenter of the Bristol Medical School. The causes, nature and results of suspended aëration of the blood, are pointed out with great clearness, with an interesting notice of the principal morbid conditions of the animal organism, which terminate in death through the medium of asphyxia, as well as of others, which the continuance of imperfect respiration would be liable to produce. The phenomena attendant upon asphyxia, from strangulation, suspension and submersion, are examined in detail; the leading facts connected with this subject, collected of late years, especially in reference to the grave medico-legal questions involved in it, were carefully noted, while a very accurate and satisfactory account is given of the treatment of asphyxia, appropriate to the different circumstances under which it may have occurred.

The account of the diseases of the organs of circulation is, as we have already remarked, by Dr. Joy.

An accurate and comprehensive digest of the present state of our pathological and therapeutical knowledge in relation to the more important lesions of the heart and blood vessels, has been long a desideratum, which the present work

will in a great measure supply. For although the summary before us is more concise than was perhaps desirable, it nevertheless comprises a very good view of the leading facts connected with the subject.

The introductory chapter which treats of the anatomy of the heart; the relations to it of the lungs; its weight and measurement, its natural and disordered motions, normal and abnormal sounds, and the arterial and venous pulse; of the diseased states of the heart generally; of their diagnosis, by local or physical, as well as by general symptoms; of their causes and prognosis, with a general view of their treatment, is particularly interesting and instructive, and facilitates greatly the correct appreciation of the nature, character, phenomena, prevention and cure of the special diseases of the organs of the circulation.

As nervous affections of the heart, Dr. Joy enumerates palpitation, syncope, angina pectoris and cardiac neuralgia; a very fair exposition of the pathology, diagnosis, and treatment of which, he presents in the four succeeding chapters.

In regard to palpitation of heart, the following remarks demand especial attention, and show the vast importance of every practitioner making himself fully acquainted with the physical signs of the organic changes of the heart.

"How much unwarrantable suffering is inflicted on individuals and families by the deplorable, but unfortunately too frequent error of confounding nervous affections of the heart with those of an organic nature, is but too well known to need to be more than simply mentioned here. It is only, however, of late years, or since more accurate grounds for forming a diagnosis of these two very opposite classes of disease have been furnished, by the discovery and judicious application of the physical signs distinctive of each, that the better informed portion of the profession has become fully aware of the extent to which such error must have formerly existed. We do not, however, pretend to say that even yet every individual case can be satisfactorily referred to its true head, though certainly a very encouraging advance towards so desirable an object has been, within our own memory, effected. When the supposed nervous palpitations are of very frequent recurrence, or continue for a very considerable period, we may still sometimes find it far from easy to make up our mind decidedly as to their real origin; and where they exist, as is often the case, in complication with structural diseases of the heart, to recognize their nature and their precise share in the existing disorder of the functions of the organ, is often a matter of extreme difficulty. Bouillaud has given a very striking example of this puzzling complication, in the case of a young, nervous, hysterical female, labouring under amenorrhœa, in whom violent palpitations recurred on the slightest causes. Even feeling her pulse, at the hospital visit, would send the blood at once into her face, and induce vehement action of the heart, with attacks of a spasmodic character, which often passed into a hysteric paroxysm. And yet with all this fallacious nervous susceptibility, by which many a careless observer might have been led to neglect all further examination of the case, there existed enormous hypertrophy of the heart, with induration of the valves of the left side, during [deriving?] their origin from an attack of articular rheumatism."

Angina pectoris, Dr. Joy is inclined to believe, may exist, at least in its less inveterate modifications, altogether independent of structural changes. It is only, he remarks, in the more aggravated and prolonged cases, that such alterations have been very conspicuous. When they occur, their most frequent seat is undoubtedly in the heart, pericardium, or great vessels. Dr. J. would appear to adopt as correct, the views of Laennec, that angina pectoris is essentially a nervous disorder, affecting primarily either the cardiac or the pneumogastric nerves or both, according as the heart or the lungs and stomach are affected, or all three simultaneously; the brachial plexus becoming secondarily affected, as likewise the superficial cervical plexus supplying the front of the thorax, and sometimes, but much more rarely, those of the lumbar and sacral plexus, giving rise to pain in the lower extremities, and occasionally to pain and swelling of the testicles.

A very interesting summary is presented of the various facts known in relation to this disease, and of the opinions expressed in respect to its pathology by

the several writers of eminence who have treated upon it, as well as a brief notice of the plans of treatment that have been proposed for its prevention and cure.

Under the head of neuralgia of the heart is considered an acutely painful affection of that organ, obviously of a nervous character, that has been described by Dr. Elliottson, and other recent writers, and which seems to differ from angina, more in respect to the small number of parts which are drawn into morbid consent with the suffering cardiac nerves, than in regard to either its nature or appropriate treatment.

The exposition presented by Dr. Joy of the several inflammatory affections of the heart, is very complete, embracing a concise but explicit notice of every well authenticated fact calculated to throw light upon their nature, symptoms, physical signs, complications, causes and treatment. Much praise is due to that gentleman for the able manner in which this portion of the work is executed.

The account of hypertrophy and dilatation of the heart, are equally full and satisfactory. The physical signs, especially, are very clearly pointed out.

The remaining affections of the heart, atrophy, changes in the consistency and colour of the organ, morbid effusions into its substance, new formations, rupture of its different cavities and of its valves, wounds, polypous concretions within its cavities, dropsy of the pericardium, displacement, hernia and malformations of the heart, are described with more or less brevity; but, at the same time, in a manner calculated to present a useful and instructive view of these comparatively rare affections; the diagnosis of which is often attended with no little difficulty, causing their true nature often to be entirely overlooked.

The notes and additions to the present volume, by the American editor, are judicious and valuable, and render it in many particulars better adapted to convey to the class of readers to whom it is addressed, correct and intelligible views of the character, diagnosis and treatment of the class of diseases which it embraces.

We recommend the entire work to our readers, as one calculated to afford to all of them much valuable information in relation to each of the several affections of the organs of respiration and circulation. To the younger members of our profession, especially, it will form an almost indispensable table book. D. F. C.

Art. XII.—*First Lines of Physiology; designed for the use of Students of Medicine.* By Daniel Oliver, M. D., LL. D., A. A. S., &c. 8vo., pp. 514.—Philadelphia: 1840. [Second Edition.]

We were among the first who had the pleasure of recommending the former edition of Dr. Oliver's First Lines to the favourable notice of the medical public, as an admirable compendium of the elements of physiology, particularly for the use of the medical student; and we feel gratified that the author has been enabled, by the preparation of a second edition to still further increase the value of the work, by copious additions;—supplying, thus, some of the deficiencies of the first edition, and including the several improvements which the science of physiology has received since its publication.

No alteration has been made in the plan and general arrangement of these outlines, and we agree with Dr. Oliver that few, if any could be found preferable, on the whole, to that which he has adopted.

The preliminary matter, constituting nearly one-fifth of the entire volume, comprising a description of the distinctive character and of the elementary analysis of the organization—anatomical, chemical, and physiological—form a very important and valuable part of the outlines, being fundamental to the whole subject of physiology.

Nearly every portion of the work has received more or less copious additions; especially those which treat of the Blood, Innervation, the Circulation, Digestion, Nutrition, Animal heat, the Senses, particularly Touch, Taste, and

Vision, Sleep and Generation; entire new sections being added, on the physiological functions of the brain, and on the development and physiology of the fœtus.

We regret that Dr. Oliver has omitted in this as in the former edition, any notice of the doctrines of phrenology—while he still retains the chapter on animal magnetism, in which credence is indirectly given to many of the absurdities which imposture has attempted to foist upon the credulity of the public as the direct effects of a peculiar magnetic influence, the very existence of which still remains to be proved.

That the numerous well established facts that have been recorded in relation to the curious and interesting phenomena induced in persons of an extremely susceptible or nervous temperament, by what has been absurdly styled animal magnetism, demand the attention of the physiologist we admit; they are a part of the vital phenomena exhibited by the animal organism under certain circumstances—the careful investigation and cautious analysis of which may in all probability lead to important discoveries in relation to the functions and mode of action of the nervous system.

Dr. Oliver after presenting in the preface to the present edition the reasons that led him to retain the entire chapter on animal magnetism, remarks that he is no advocate for the pretensions of animal magnetism, but that he has so much respect for many of those who are or have been, that he wishes it rescued from the hungry clutches of mountebanks, and impostors, and placed under the protection of science, until its claims shall have received a thorough investigation. He appears, however, to have forgotten that the very reasons offered by him for the consideration of the subject of animal magnetism in an elementary system of physiology, may be urged with still greater propriety in favour of a consideration also, of the doctrines of phrenology—which, to say the least, are of equal importance and supported, certainly, by as large a mass of well established facts, while they have received the sanction of men, equal in numbers, as well as in intelligence, cautiousness and candour, with those who after an examination of the subject, declare themselves to be satisfied with the evidence in favour of the claims of animal magnetism. D. F. C.

ART. XIII.—*Knight's Miscellanies. English Causes Celébres; or, Reports of Remarkable Trials.* Edited and illustrated by GEORGE L. CRAIK. Vol. I. London, 1840.

No student in legal medicine can long be unacquainted with the contents of that extraordinary collection of French law cases, which is usually denominated the "*Causes Celébres.*" The remarkable narratives contained in these volumes interest equally the old and the young. "They are indeed a history of passion and adventure, often as exciting as any fiction, with all the impressiveness and substantial value of truth." But they acquire a higher importance, when, as is frequently the case, their discussion involves questions of medical science.

A work in imitation of the above has recently issued from the English press. The first volume contains the trial of Count Koningsmark, and others, for the murder of Mr. Thynne, 1682; of Col. Turner, and others, for felony and burglary, 1664; of the Rev. Robert Hawkins, for felony, 1669; of the Earl of Pembroke, for the murder of Mr. Cony, 1678; the great Huntingdonshire case of Day *versus* Day, 1797; the case of the Perrys, executed for murder, 1661; the trial of Arthur Norkott, and others, for the murder of his wife, 1628; and the trial of Philip Standsfield, for the murder of his father, 1688.

Several of these cases are to be found in the ENGLISH STATE TRIALS, and the two last (Norkott and Standsfield) are noticed in almost every systematic work on medical jurisprudence. In each, the proof of murder was supposed to be strengthened by the bleeding of the corpse from the touch of the murderer. Mr. Thynne received numerous fatal wounds from the discharge of a blunderbuss,

and he survived but a few hours; so that in his case, no medical point could be contested. Again, on the trial of Lord Pembroke, it was proved that he had severely injured his victim in a drunken brawl, and the Peers, by whom he was tried, manifested their sense of his guilt, by finding him guilty of manslaughter. The Perrys were found guilty of murder under strong circumstantial evidence, but *without finding the body*. They were accordingly executed, protesting their innocence—and yet, some years afterwards, the individual supposed to have been murdered, returned to his dwelling and declared that he had been seized and carried to foreign parts, from which he had just escaped!

Of the remaining three cases, there is only one that belongs to our present subject. I refer to that of Day *v.* Day.

Thomas Day, of the county of Huntingdon, died in 1775, leaving two sons, Thomas and John. He devised his property, which was valuable, to the oldest for life, with remainder to the heirs of said son, and in default of such issue, to his younger son in fee. Under this will, Thomas succeeded to the estates. He married one of his servants, Mary Lakin, the daughter of a carpenter, who, after having borne him a daughter which died, professed herself, in the latter end of the year 1774, to be again pregnant. She went to her native place in Staffordshire, under pretence of being delivered there, where she might have the attendance of her mother, and returned in March, 1775, with a child which she called her own, and which her husband received as his son, and a short time before his death acknowledged as such in his will. Not long after, a separation took place between the husband and wife, and they continued apart until October, 1783, when the former died. The minor, by his trustees, entered into possession of the estates of his father.

It appears that some time previous to the death of Thomas Day, he received an unsatisfactory account respecting the birth of the child, and an attorney at his request, called on Mrs. Day concerning the same. She stated that the *child was not hers*. On a subsequent occasion, she swore before a Master of Chancery, that she had lain in of a child, which died, and that she had prevailed on a relation to give up her child, and that it was this child which she had taken to her husband. Mr. Day, on being made acquainted with these circumstances, signed the deed of separation, but declared, that although the child was not his, yet as he was fond of it, he would take care of it.

Information of these and other corroborating facts having reached Mr. John Day, he instituted a trial by ejectment for the recovery of the estate. It came on at the assizes, in 1784, before Lord Loughborough, Chief Justice of the Court of Common Pleas, and a special jury.

For the plaintiff, it was proved on the testimony of several witnesses, male and female, that Mrs. Day, at the time of leaving home, had not the appearance of being pregnant; that she had not that appearance during any part of the three months which she spent at her father's house, in Leigh; and that she did not lie in there. It was positively sworn by a female domestic in the house of her father, that when Mrs. Day and her mother set out for Huntingdonshire, at the end of three months, they had no child with them. Another female stated that she had frequently slept with Mrs. Day while she was at Leigh, and washed her linen, and she did not appear to be with child. It further appeared in testimony, that Mrs. Day took away the infant of her sister-in-law, and retained it several days; nor did she return it until compelled by a magistrate. This was in February, 1775.

The parties (Mrs. Day and her mother) were traced to Litchfield, at which place they had no child with them. At Atherstone, however, they arrived on foot and went to the house of an aunt. Mrs. Day had a child with her, and said "I have brought you my child." The aunt replied that she did know that she had one, to which Mrs. Day answered, "Oh yes, I have been to my mother's to lie in, and the child is five weeks old." They remained some days, and then proceeded homewards. Two females intimate or resident in the house testified that Mrs. Day did not suckle the child, and that she stated that she had no milk. The suspicions of the husband as to its paternity were also fully proved.

This was the evidence for the plaintiff. On the part of the defence, after producing the will of Thomas Day, in which he described the defendant as his son and left him all the property, female witnesses were produced to prove that Mrs. Day appeared big with child, when she left home—some of them swore that they had seen her suckle the child while others had never witnessed it.

Elizabeth Rutter deposed that Mrs. Day was delivered of a child at Broseley in Shropshire, during the month of January, and that she and a midwife were the only persons present at the birth—that Mrs. Day remained with her a month and then returned home. This testimony was confirmed by Mrs. Cornes, the step-mother of Rutter. Mrs. Day, the mother, was next examined and her testimony agreed with that of the two last witnesses. She had left her father's house on account of a quarrel—and had arranged to be confined at the house of Rutter. She explained away the fact of not having the child with her at Litchfield, by saying that she had left it at a place near while she went on a visit to her mother's. She also acknowledged that she had sworn that the child was not hers, but it was for the purpose of getting it back from Mr. Day.

Several witnesses swore to the great resemblance of the child to Mr. Day.

Lord Loughborough in summing up, remarked that the evidence of the plaintiff was circumstantial only, and not positive, and it was necessary, in a case of this description, to make out the fact by the clearest evidence. On the other hand, the child had been brought up as the son of Mr. Day, and his will had fully confirmed this belief. Nothwithstanding the improbable accounts of the mother and her witnesses, he advised a verdict for the defendant, which was accordingly found.

In a few months after the trial, Mrs. Rutter and her mother came to Mr. Herwood, the steward of the Marquis of Stafford at Trentham Hall, near which they resided, and told him that what they had sworn on the trial was false, that they had never been happy since, and were now desirous of confessing the truth. On being carried before a magistrate they repeated this statement and deposed that Mrs. Day had promised them money (which she had not paid) if they would tell the story of her being brought to bed at Broseley. The father of Mrs. Rutter also swore that Mrs. Day had urged him to accompany his wife and daughter to the assizes and confirm their testimony, which he had refused to do knowing it to be false. Important information was further procured as to the females who had obtained the child for Mrs. Day, and also as to its actual mother.

Mr. John Day however was so much injured in his property, by the expenses of this suit, that he was unable to commence another. He died in 1795. His son, being in a situation to incur the risk of a new trial, instituted it, and the case was again brought to issue in 1797. Mr. Erskine was the leading counsel for him, while on the other side, were Messrs. Le Blanc and Garrow, afterwards judges. The defendant was now a man grown, of excellent character and highly popular; so much so that Mr. Day in a subsequent publication asserts that "the town of Huntingdon, during the trial, more resembled the scene of a contested election than an assize town during the solemn administration of justice, and such was the state of confusion in the town, at the time of the trial, that I was obliged to apply to the Mayor to order out his constables to keep the peace, and to enable me to bring my witnesses into court."

In analysing this second trial, I will only notice such additional circumstances as were developed concerning the supposed pregnancy and delivery of Mrs. Day.

It was proved by a respectable witness that Mrs. Day was present at a christening on the 14th of December 1774—that she staid all night, was in good health and spirits and had no appearance of being pregnant—and yet she must have been (if her account was correct) at least seven months or more advanced at this time. It was further proved that she had been present and stood Godmother at the baptism of Edward, son of William Riddle on the 22d of January 1775. Ann Harris swore that she met a female at the Stafford market in February 1775, who wished her to go in quest of a child—that she accompanied the female to the house of Sarah Hollander, who had recently lain in—and that Mrs.

Day had offered money to Sarah, if she would sell her child. This was refused by Sarah, and it may be here added, that Sarah Hollander was subsequently called as a witness and confirmed the correctness of this deposition. Mrs. Harris further stated that another child was obtained at Wolverhampton, and retained by Mrs. Day, until the mother accompanied by a constable, reclaimed it. This evidence also was confirmed by the mother Mary Rone and the constable.

Among the witnesses last called for the plaintiff, was Ann Stokes or Osborne, alleged to be the real mother of the defendant. She deposed that she had an illegitimate child born to Charles Dutten—in the Birmingham Workhouse; that when the child was about thirteen or fourteen weeks old John Harris made an application to her on behalf of a lady (whom she afterwards identified as Mrs. Day) for the child—promising to have it well brought up and that it would have property. She consented and gave up the child. She never heard of it again until about eleven years thereafter. She was informed by Mr. Horwood, that Mrs. Day resided at Trentham—and accordingly repaired there, but was not allowed to see her. About three years afterwards, she was more successful. She saw Mrs. Day, who owned that she had the child from the witness; that it had been well taken care of, and was now alive and well. Mrs. Day further mentioned that there had been a trial about the child.

Mr. Garrow in his cross-examination endeavoured to draw from the witness an admission that her life had subsequently been a dissolute one—in so far as related to the practice of adultery, (for she had subsequently married.) When hard pressed, she did not deny this, but would not give a direct answer—and said she did not come to swear that. The fact of her interview with Mrs. Day, and the conversation between them, was confirmed by Elizabeth Lakin, Mrs. Day's sister, who was with Mrs. Day at Trentham.

These were the most important facts in behalf of the plaintiff. For the defendant, it was urged by his counsel, that several witnesses were now brought forward, who spoke of circumstances and conversations which they had never mentioned on the trial in 1784. The inference hinted at, was of course that they might now be bribed.

Mary Harding, then in the service of Mrs. Day and at that time about fourteen years old, remembered the departure and return of Mrs. Day. She was very large when she left—had all the appearances of pregnancy—and on her return, the witness swore positively, that she suckled the child for a quarter of a year. The witness acted at times as a nurse, and was therefore positive on this subject. When the child was removed by Mr. Day, the mother manifested much grief and distraction of mind. The testimony of Mary Reed, another house servant, was to the same effect. "She had seen Mrs. Day suckling the child many times and had seen the milk drop from her breast." Mr. Peck, a surgeon and accoucheur in the vicinity, who had attended Mrs. Day in her first labour, deposed that this had been a painful one and that Mrs. Day had assigned this, among other things, as a reason for going to her mother's—that the subsequent pregnancy was a frequent subject of conversation between him and Mr. and Mrs. Day, and that he had remarked to the former, that "he had lost a job by Mrs. Day going into the country to lie in." Mr. Peck also saw Mrs. Day, about two weeks after her return—and saw the child attempt to suck, "but I did not see the milk; I am not certain of that." Another female however swore positively, that Mrs. Day had suckled the child in her presence, and when it was removed from the breast, she saw the milk drop.

Several witnesses both male and female, deposed to the striking resemblance between the defendant and the late Mr. Day.

The Jury after a charge from the judge, rather leaning towards the defendant, brought in a verdict for the second time in his favor.

It is added by the Editors, that the defendant declined receiving the costs of the trial, amounting to £480, although they were tendered to him, accompanied with an assurance, that as soon as he should have got the money, another action of ejectment would be brought. He also refrained from claiming one hundred acres of land in the possession of John Day, although his right to them was

clearly as good as to the other property. Finally, he proposed a compromise, by giving up this very property, which, after much solicitation by his friends, Mr. John Day reluctantly assented to—and thus a bar was placed to all further litigation.

It is also stated, that some time subsequently, the defendant was visited at his house by his reputed mother Mrs. Osborne.

Was or was not, this a case of *Pretended Pregnancy and Delivery?* I incline to believe that it was. The only circumstances (medical) that seem to militate against this opinion, are the presence of milk in the breasts and the remarkable resemblance between the supposed father and son. Yet both these might actually exist, without necessarily involving the result decided upon by the jury. We now know that even unmarried females have suckled children—and is it not possible, that by constant irritation, milk may have been produced in the breasts of this female, who had previously borne a living child? As to the resemblance, while we readily allow, that this was an extraordinary fact, we must also confess that it has often occurred in individuals born thousands of miles from each other.

T. R. B.

ART. XIV.—*Report of* THOMAS LAWSON, M.D., *Surgeon General of the United States Army*, communicated by the President to the two houses of congress, at the commencement of the second session of the twenty-sixth congress. Washington: 1840.

THIS, like the preceding reports from the same able officer, contains some very interesting information.

The whole number of cases under treatment during the year ending September 30, 1840, was 29,076, of which 28,167 were within the year, and 909 were remaining from the previous one. Of the whole number reported sick 27,514 have been restored to duty, 215 have been discharged the service, 33 have deserted, and 254 have died; leaving 1,060 on the sick report September 30, 1840.

The mean strength of the army for the last year is estimated at 10,116, and the number reported sick during the period just named being 29,076, and the aggregate of deaths 254, the proportion of cases of indisposition to the number of men in service was as 1 to 2.8 or 280 per cent.: the ratio of deaths to the number of men 1 to $39\frac{7}{8}$ or $2\frac{1}{2}$ per cent., and the proportion of deaths to the number of cases treated, as 1 to $114\frac{1}{2}$, or a fraction less than 1 per cent.

"Upon comparing the sick reports from the different sections of country, we find," the surgeon general remarks, "that the greatest number of cases of indisposition, and the greatest amount of mortality have, as heretofore, occurred among the troops serving at the southwestern posts; while the least amount of sickness, and the fewest number of deaths, comparatively, have occurred at the military posts of the northwestern section of our country.

"Of the posts occupied by troops during the last year, forts Gibson and Wayne, on the southwestern, forts Crawford and Detroit on the northwestern, and Poinsett barracks and Madison barracks on the northern frontier, were the most unhealthy in their respective sections of country.

"Hancock barracks, in Maine, (the only eastern post occupied by a large body of troops,) is always healthy. And the army in Florida has, during the last year, comparatively speaking, suffered less from disease, and lost fewer men by natural causes, than the troops on the southwestern stations, or those located at Detroit, Poinsett barracks and Madison barracks.

"The unusual amount of sickness and of mortality at Madison barracks, Poinsett barracks and at Detroit, may be attributed, in a measure, to the location of the troops within, or in the immediate vicinage of Sackett's Harbour, Buffalo and Detroit. Troops are always more sickly, and their diseases generally more malignant when brought into temptation, and placed within the reach of the dissipation of a town.

"Of all the military posts, however, which have been occupied by troops for several years past, forts Gibson and Wayne, in the state of Arkansas, are decidedly the most sickly.

"Fort Gibson, in particular, is an exceedingly unhealthy position; it has not only given a greater number of deaths, but, I believe, has invalided more men, for the last ten years, than any other military station in the United States. This post is situated in the immediate vicinity, and on the northeast side of the rivers Arkansas, Verdigris and Neosho; and as the prevailing winds during the summer season come from the south and southwest, it is to leeward, and consequently on the wrong side of those rivers; and an immense tract of low land, intersected with lakes, lagoons, &c., near the confluence of the streams."

There were 41 applicants for appointment to the medical staff of the army during the year, of whom 20 declined or failed to present themselves for examination, 1 was over the age prescribed by the regulations, and 20 were examined, of whom 10 were approved.

ART. XV. *Outlines of Anatomy and Physiology.* Translated from the French of H. MILNE EDWARDS, Doctor of Medicine, Professor, &c., &c. By J. F. W. LANE, M. D. Boston: C. J. Little & J. Brown, 1841; pp. 312, 8vo.

THE reputation of M. Edwards would of itself be sufficient to ensure the present work a welcome, even though not one aiming at the depth and originality of scientific research by which that distinguished author acquired his fame. The American translation is well executed, and is very handsomely got up as to typography and cloth binding. The wood-cuts with which, in compliance with the taste now so prevalent, it is decorated, appear to us well executed and distinct. We are also pleased to observe that the publisher is one of those who have resumed the ancient and useful practice of inserting marginal, indented notes, recapitulating the matter of the text. These are among the mechanical means which greatly facilitate study and reference.

The work before us appears well adapted to the purposes of the scientific or literary man who wishes to acquaint himself with the elements of modern physiology. It is not apparently intended for the popular market; no effort being made at the tone of familiarity which seems necessary to encourage readers not in the habit of analogous studies. It is, however, quite sufficiently clear for the purposes for which we have just recommended it. The style of Professor Edwards is of that lucid kind which, as Buffon remarks, is the growth of a clear habit of thinking, and is the true evidence of a sound, philosophical intellect, if not of genius. It cannot, of course, be devoid of that foreign air which arises from the fact of its having been written for a public of a different kind from ours. We must give Dr. Lane the credit of having made, though with an inaccuracy or singularity here and there, a very good version, much above very numerous specimens we have presented to us. It is scarcely possible that a fine writer should not suffer in a translation, even where the translator is himself an equally fine writer. Idioms incapable of being rendered in another language, the latter is not allowed to replace by new beauties of his own; because the product would by so much become his own work instead of that of the first author. The utmost praise, therefore, at which a translator can aim seems to be faithfulness, clearness, and an appropriate style. In this, in general, we think the present volume successful. Novelty is, of course, out of the question. As the work is itself an abstract, it needs not that we should prepare one.

B. H. C.

ART. XVI. *Medical Etiquette; or, an Essay upon the Laws and Regulations which ought to govern the conduct of Members of the Medical Profession in their relation to each other. Compiled exclusively for the Profession.* By ABRAHAM BANKS, Esq., M. R. C. I., &c., &c., &c. London: 1839; 12mo. pp. 104.

THIS essay embraces the consideration not only of medical etiquette in its restricted and ordinary signification, but the more important points of medical ethics and also various subjects appertaining strictly to medical politics. The code of morals advocated by Mr. Banks is high toned and just; and a rigid adherence to them would elevate the profession to its correct position. With regard to the soundness of the author's views in relation to *some* points of medical politics we are not so well able to judge as the doctrines he inculcates have reference to the state of the profession in England, which is so different from what it is in this country, that what may be expedient there may be the reverse here. There is one subject to which the author devotes a chapter, that on the mode of Payment of Medical Men, in which he insists on the expediency of remunerating all medical practitioners by *fees paid at the time*, which would be well worth considering had we the space for the purpose.

While we can unhesitatingly commend the moral precepts of our author, we regret that we cannot do the same for the language in which they are conveyed. There are some passages in his work so grandiloquent and inflated as fairly to compete with the loftiest flights of western stump oratory. We trust this will be attended to in another edition.

ART. XVII. *Rambles in Europe in* 1839, *with Sketches of Prominent Surgeons, Physicians, Medical Schools, Hospitals, Literary Personages, Scenery*, &c. By WILLIAM GIBSON, M. D., Professor of Surgery in the University of Pennsylvania, Senior Surgeon to the Philadelphia Hospital, &c., &c. Philadelphia: Lea & Blanchard, 1841; 12mo. pp. 309.

THE desire to know something of the character, personal appearance, manners, &c., of great men, with whose works we are familiar, is strong and almost universally felt; and we venture, therefore, little in predicting that the volume before us will be eagerly sought after and generally read. Its merits will, moreover, secure for it still higher success. The sketches it contains are graphic, spirited, often piquant, and apparently accurate. Whatever opinion may be held as to its being strictly proper to delineate living characters, or whether being so shown up may be agreeable to them, it must at all events be allowed that such exhibitions are generally gratifying to the spectators. But the reader of this volume will not only find amusement in it, he will also receive instruction, and will obtain a clearer insight into the characteristic traits of prominent professional men, than he could acquire even in a long residence among them.

ART. XVIII. *A Visit to Thirteen Asylums for the Insane in Europe; to which is added, a Brief Notice of Similar Institutions in Transatlantic Countries and the United States, and an Essay on the Causes, Duration, Termination, and Moral Treatment of Insanity, with Copious Statistics.* By PLINY EARL, M. D., Resident Physician of the Friends' Asylum for Insane, Frankford, near Philada., &c., &c., &c. Philadelphia: 1841; pp. 144, 8vo.

THE first part of this volume consists of an article which appeared in the Number of this Journal for November, 1839, and which excited considerable attention, and has been extensively quoted. To this Dr. Earle has added brief notices of the Insane Asylums in England, Scotland, Ireland, Holland, Belgium,

France, Italy, Egypt, and the East Indies, which he did not visit; and also accounts of the Asylums for the Insane in the United States. The volume concludes with an essay on the causes, duration, termination, and moral treatment of Insanity, which is enriched with some very interesting statistical statements.

This volume commends itself to the attention of every one who is interested in the subject of Insanity, by the large amount of valuable information it embodies, as well as by the confidence which may be reposed in the views of the author from the great attention which he has paid to his subject.

ART. XIX. *A Memoir of the Life and Character of the late Joseph Parrish, M.D.* Read before the Medical Society of Philadelphia, October 23, 1840. By GEORGE B. WOOD, M. D. Philadelphia: 1840; pp. 72, 8vo.

FEW men have enjoyed a more enviable reputation in the community in which they lived, than did the late Dr. Parrish. Ardently devoted to his profession, industrious, benevolent, conscientious, and endowed with great moral courage, he had in an unusual degree the faculty of acquiring the unbounded confidence of his patients, of attracting to himself many and devoted friends, and of conciliating every one with whom he came in contact, so that it may be truly said that he had no enemies. Not only was his success throughout life unusual, but he has had the still rarer good fortune to find a biographer who could appreciate his character, and the talents to correctly delineate it. The extent of this good fortune will be appreciated if it be admitted, as we believe it must, to be a just observation, that "a well written life is almost as rare as a well spent one; and there are certainly many more men whose history deserves to be recorded, than persons willing and able to furnish the record."

ART. XX. *Annual Report of the Board of Trustees of the Massachusetts General Hospital for the year* 1840. Boston: 1841; pp. 44, 8vo.

THIS report comprises some interesting documents.

The number of patients received during the year 1840 into the Hospital in Allen street, as reported by the superintendant, was 362, of whom 144 were cured, 96 were much relieved, 41 were relieved; 43 were not relieved, many of them having been almost beyond the hope of recovery before they entered the hospital; and 22 died.

In the very able report of Dr. Bell, the Physician and Superintendant of the McLean Asylum, we are furnished with the following statistics of that institution for five years:

Year.	No. admitted.	No. discharged.	Whole No. under care.	Died.	Not improved.	Improved.	Much improved.	Recovered.	Remaining.
1835	83	84	163	11	7	11	9	45	77
1836	106	112	183	10	24	5	9	64	71
1837	120	105	191	8	8	4	10	72	86
1838	138	131	224	12	13	7	23	74	93
1839	132	117	225	10	13	11	11	69	108
1840	155	138	263	13	18	20	12	75	125

"The ratio of recoveries and of deaths in those discharged, and of deaths in the whole number of those under the care of the Asylum, as continued from the table published in the last Annual Report, is as follows:

Year.	Per cent of recoveries.	Per cent of deaths of discharged.	Per cent of deaths of all under care.
1835	53.5	13.	6.1
1836	57.1	8.9	5.5
1837	68.6	7.6	4.2
1838	56.4	9.1	5.4
1839	59.	8.5	4.4
1840	54.3	9.4	5.

"From these statistics it appears, that during the four years of the direction of its present Superintendant, the proportion of recoveries of all cases old and recent, without allowance for those proving "unfit" or not proper subjects, or those who have died under care, or those who have been prematurely removed before the event was known, has been about sixty in the hundred, and the proportion of deaths between four and five in the hundred."

The following remarks of Dr. Bell are well worthy of attention. "During the last years" he says, "I have not attempted to draw the line of demarcation between *recent* and *old* cases, as experience has satisfied me that any attempt to decide upon the duration of time before admission, that the patient has been afflicted, is exceedingly fallacious, giving a mere approximation to the fact. It is liable to the same objection which obtains in essaying to specify the causes of disease, that of giving an apparently mathematical and certain aspect to facts, so involved in doubt, so complicated and vacillating, that they really have nothing like fixedness or certainty.

"The records of this Asylum justify the declaration that *all cases certainly recent*, that is, whose origin does not either directly or obscurely run back more than a year, recover under a fair trial. This is the general law; the occasional instances to the contrary are the exception.

"During some years, as in 1838 for illustration, we have had so entirely the co-operation of friends in a due perseverance that we should have been able to report the recovery of 100 per cent. of cases presumed to be recent. Again, in another year, the premature withdrawal of half a dozen cases before we regarded them as recovered, although their friends might so consider them, would present an entire different view of the curability of insanity in two different years, as far as figures express the fact, although the actual results might be identical. So the general expression of the fact that sixty per cent. of all cases have recovered during the last four years, is of no importance as a means of drawing any conclusions, except as to the different periods of the same institution. In this Commonwealth, where the value of hospitals for the insane has been established for over twenty years, and the community is so generally advised of the infinite importance of early subjection to treatment, the results of institutions must be far more favourable than in communities where all this acquaintance and public confidence has yet to be acquired. This is strongly illustrated in contrasting the first and last five years of this Asylum, showing a difference of over a hundred per cent., which is undoubtedly ascribable mostly to this fact of more recent admissions, and some changes in the regulations in regard to hasty removals.

"There is, I am satisfied, no institution in the world, which upon the whole receives its cases with less delay after disease has proved intractable at home, than this. Its *private* character however, subjects it necessarily to some drawbacks upon its ratio of recoveries. Patients are only retained so long as friends elect;—there is no statutory provision compelling the institution to receive, or preventing the removal of any patient at any time. Hence infirmity of purpose, want of persevering faith, or still more frequently want of pecuniary means, often occasion differences of results in our annual summing up, by the removal of re-

coverable cases, to an extent which proves the absurdity of the statistics, except as a means of comparison at different epochs of the same establishment.

"Again, in the mortality and restorative results of various institutions, how great a difference should be looked for from difference of regulations as to admissions—in an institution for example, receiving only cases of violent excitement and high action, and in one where no restriction as to the patient's condition exists, where the exhausted, the aged, the epileptic and the hopeless are brought merely to relieve friends, or in the desperate hope that some new appliances may renovate the exhausted system.

"I have been induced to suggest these hints upon the fallaciousness of the ordinary statistics published, when regarded irrespective of the varying and modifying circumstances, which, in this country at least, prevent any just comparison from being made in the mere abstract results of figures, not from any apprehension that our Asylum may not appear as well on paper as any other, for the influence of its happy position in a community where the insane, who belong to the classes from which its inmates are derived, as a general rule are received speedily after a decided outbreak of excitement, always has afforded a larger proportion of curable subjects than I have noticed in any other. But during the past year the attempt has been made (with the best intentions I doubt not,) to aggregate the mere figured statistics of the various American hospitals for the insane, and deduce conclusions from them, without reference to their difference of position or of regulations as to receiving, rejecting, or dismissing patients. In such statistics injury must be done to some whose apparent results may not be so honourable as the real, of which only those who are informed of all the particulars of difference, a small portion of the public of course, can discriminate and arrive at an accurate judgment. A single illustration will perhaps place the absurdity of the common expressed statistics of insane hospitals in a stronger light. A new institution in a state where the patients are committed by the order of a judge of some court, is capable of receiving a hundred patients. During its first or second year, or until its accommodations are filled, it might be that its only patients discharged would be the recovered, if its managers or directors should so decide, for in the supposed case the friends have no voice in the decision. Of course its recoveries of all cases, old and recent, would be 100 per cent. And subsequently its per centages would depend exactly upon the number of harmless or incurable or inconvenient subjects which its directors should judge it expedient to dismiss!

"A few years since it became necessary in order to accommodate the urgent claims of recent cases, for the Trustees to cast their view over the entire class of old cases, many of whom had been in this Asylum from its opening, to ascertain how many and which could be dismissed with least injury to themselves or to the comfort of their friends. So many were dismissed under this resolution "not improved," as to make in that year fifteen or twenty per cent. difference in the apparent results!

"As far as this Asylum is concerned in the apparent bearings of statistical returns, the favourable circumstances in which it stands as before alluded to, prevent any danger of its suffering from comparison of figures;—for in the view of these it is believed that no published returns present more decided favourable results, but feeling unwilling to reap honours not fully deserved, it has been felt due to the sanctity of scientific truth and to justice as regards the new institutions springing up every where around, that the community should be set right on this subject."

SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *Lymphatics of the Brain.*—Dr. F. Arnold, in his researches on the structure of the brain and spinal cord, and in his Icones Anatomicæ, has published the first complete description of the absorbents of the brain. In the dura mater, veins only were for the most part filled by the injection, and he obtained very successful mercurial injections of the absorbents of the pia mater. He distinguishes three different networks: 1. A superficial delicate one, whose vessels are one-sixth of a line in diameter, and whose meshes are extraordinarily minute, lying in the cellular tissue which connects the arachnoid with the pia mater; 2. A deeper and coarser network also in the subserous tissue of the arachnoid, and composed of vessels with a diameter of one-fourth of a line; 3. A still coarser network, with vessels one-half of a line in diameter, and with such narrow interspaces, that when they are filled the brain seems completely covered by the injection. This network, however, is contained in the pia mater, and passes with its plexus into the depths of the furrows between the convolutions. The trunks of the absorbents into which these networks are continued take the course of the veins on the surface of the brain, accompany them closely, and pass with them and with the arteries through the foramina in the skull. In the choroid plexuses of the lateral and third ventricles there are lymphatic networks and small trunks, which collect into one considerable trunk, accompanying the vena magna Galeni. The absorbents of the very substance of the brain, which probably go with its small veins, could not be filled; they always gave way just on the walls of the ventricles. At present also the attempts to inject the absorbents of the spinal cord have had no success.—*London Med. Gaz.*, November, 1840.

2. *Absence of the Uterus.*—Dr. Seguin relates, in the *Revue Médicale*, (July, 1840,) an example of this malformation. The subject of it was a woman, aged 27 years, of excellent constitution, and enjoying perfect health. The mammæ were well developed, and the external parts of generation perfectly formed, but the vagina was a cul-de-sac, of about an inch and a half in extent, it was lined with a rose coloured rugose membrane. Curious to discover whether there existed behind the membranous closure a uterus or rudiment of one, Dr. S. introduced a finger into the rectum and another into the imperfect vagina and ascertained that the two fingers came in almost perfect contact. No trace of an uterus could be detected.

This woman is married, has venereal desires, and every month experiences a species of *molimen hæmorrhagicum*, though she has never had any hæmorrhage to replace the menstrual discharge.

Notices of some similar cases will be found in our Numbers for May, 1840, pages 39 and 185, January, 1841, page 270, and in the present Number, page 348.

3. *Arrest of Development of the Uterine Organs.*—Dr. O'Bryen records, in a recent No. of the *Dublin Journal*, (January, 1841,) an example of this, in which the uterus measured only one inch in length, one line and a half in thickness, and four lines in breadth, which latter was the same at the os tincæ and the fundus. The ovaries were each about the size of an almond, and, when divided, presented two or three cavities. The Fallopian tubes were well formed, but their openings into the uterus were much larger than usual; the os tincæ was about the size of a small pea, and very soft; the vagina was small, and had a very few rugæ.

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4. *Menstruation during Gestation, and Amenorrhœa in the intervals.*—Dr. Meurer has recorded an example of this in a woman ætat. 27, pregnant, when he wrote, for the fourth time. She always has had her menses regularly during pregnancy, and only during that time. They come on without any illness; and she has always borne healthy children at the full period. While unmarried, and except during pregnancy, she never menstruated, but she was never unwell from it. Her general appearance is rather masculine; it appears, therefore, that in her, as in all viragos, the sexual functions require a powerful excitant, such as pregnancy, to cause them to be energetically performed. The menstruation appearing in such a person during pregnancy may be regarded as a wise effort of nature to relieve the local fulness of the sexual organs, which might prove injurious.—*Lond. Med. Gaz.* Nov. 1840, from *Med. Correspondenzblatt.* Bd. 9. No. 31.

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5. *On the Mechanical Functions of the External Ear.*—There is an exceedingly interesting paper on this subject in the Number for January last, of our esteemed transatlantic cotemporary, the *Edinburgh Med. and Surg. Journ.*, by Dr. James Sym, of Ayr. We have room at present only for the following summary of the author's views.

1. The external ear protects the *membrana tympani*, and at the same time contributes to a knowledge of the direction of sounds.

2. The *membrana tympani* presents a large recipient surface for sonorous impulses, which draw its apex outwards.

3. The ossicula of the tympanum constitute a system of levers by which the motions of the *membrana tympani* are transmitted to the *fenestra ovalis*, with their extent diminished but their momentum preserved.

4. The laminæ of the cellular bones which surround the ear convey vibrations from the larynx by means of the ossicula to the *fenestra ovalis;* and these have their extent increased whilst their momentum remains the same.

5. The combined effect of the difference of extent of the *membrana tympani* and *fenestra ovalis*, and the difference of range of motion of the point of the malleus and base of the stapes, is to concentrate the impulses of the air, and adapt them for being transmitted without loss to a denser fluid.

6. The stapes is raised from the *fenestra ovalis* by the impulses of the sonorous undulations.

7. The muscles of the tympanum restore the *membrana tympani*, and the base of the stapes to their quiescent position.

8. The *fenestra rotunda* permits the pressure of the atmosphere to act through the Eustachian tube upon the water of the labyrinth so as to enable the stapes to be raised.

9. The water of the labyrinth oscillates over the auditory pulps by the alternate suction and pressure of the stapes, and this excites the sensation of hearing.

10. The extent of oscillation is regulated by the cochlea, the laminæ of which expand and contract according to the degree of friction to which they are exposed.

11. The aqueducts are diverticula for receiving the water displaced by the expanded laminæ.

12. The petrous bone deafens the internal ear by excluding such vibrations as are not transmitted by the ossicula.

PATHOLOGICAL ANATOMY.

6. *Perforations connecting the Œsophagus with the air tubes of the Lungs.*—Dr. Osborne exhibited to the Dublin Association of Physicians two preparations exhibiting the above lesion.

The *first* was taken from a young man who enjoyed good health till about four months previous to his death. At that time he was first observed to cough always after swallowing liquids. This increased so much that he was at length obliged to abstain entirely from drinking. On the morning of his death he was eating a breakfast of beefsteak, when he was seized with a fit of suffocation, and was brought to the hospital gasping for breath. A probang was passed with a view to remove the obstruction, but no improvement was obtained, and in a few minutes he died.

On examination after death nothing was found in the larynx or œsophagus to account for this sudden catastrophe, and the parts were on the point of being closed, when one of the assistants happening to put his finger down the œsophagus, felt something rough at the side of it, adjacent to the bifurcation of the trachea. This produced a further inquiry, and it was ascertained that a perforation had taken place exactly in the raphé above the bifurcation, that a portion of a piece of gristly beef had passed through it, which unfortunately for the patient had been divided into two portions, one of which had stopped up each of the bronchi, while it had been retained in its situation by a large portion connected with it, which remained in the œsophagus. The orifice through which it had passed was a longitudinal slit, which, when expanded, would form an opening equal to a fourpenny piece. There were no vestiges whatever of ulceration, or of any diseased process around the orifice; and Dr. Osborne stated his opinion to be, that this was a case of congenital defect resembling cleft palate; that owing to some accidental circumstance it had become enlarged four months ago, when swallowing fluids was followed by a cough, and the irritation attendant on their escape into the bronchial tubes; that the immediate cause of death was an irritation producing a necessity for coughing, unfortunately at the moment when the piece of beef had arrived opposite the orifice, when the unfortunate patient being obliged to make a sudden and forced inspiration preparatory to the cough, the beef was sucked into the trachea, and each lobe of it also sucked into a bronchial tube, which were thus as it were *corked up*. Perhaps there is not on record a more remarkable instance of loss of life from so singular a combination of circumstances: 1st, A perforation of the œsophagus penetrating the trachea just above the bifurcation; 2dly, The patient making a forced inspiration just at the moment when a piece of meat was in the act of passing the perforation: and 3dly, The meat happening to be divided into three lobes, one stopping up each bronchial tube, while the third remained in the œsophagus, and thus maintained it in its position.

The *second* case was that of an individual who appeared to have possessed intellectual energies far above his station in life. He was a working shoemaker, and burthened with a family, but found time to combine the labours of authorship in various departments, with those of a political orator, and Methodist preacher. About eleven months previous to his death he first experienced a difficulty in swallowing, which gradually became painful. When the patient was admitted into the hospital, he complained of lancinating pains in the œsophagus, even when not engaged in swallowing, which usually belong to the progress of scirrhous and cancerous disease in that part. The passage of the œsophagus tube, however, in the hands of one of the ablest surgeons of Dublin, failed to detect any, even the slightest stricture. Under treatment, the state of his stomach was much improved, but no improvement of deglutition obtained, and he went to the country. His condition did not become sensibly worse till about seven weeks before his death: then he was tormented with cough on every occasion of swallowing, or whenever he lay on the left side, and continued in this state of suffering till his death.

An opportunity of examining the body having been offered by the family, a very remarkable correspondence between the symptoms and the disease was brought to light. The greater part of the œsophagus was so much diseased that in the preparation it can scarcely be recognized. The ulcerations in several places formed large excavations in the mass of adjacent scirrhous structure. In the portion adjacent to the bronchial tube, a peculiarly large excavation extended, engaging in it several of the bronchial glands, and there is an oval perforation with thin jagged edges, forming a direct communication between the œsophagus and the air tube. The size of this being nearly one inch in length and half an inch in breadth, we can readily understand: 1st, How swallowing any thing solid or fluid produced coughing; and 2dly, How some degree of ease was obtained by lying on the right side. It is also to be observed, that although both lungs were healthy, yet that at the apex of the left lung a collection of miliary tubercles were in progress of formation; this being a result of the peculiar irritation to which that lung was exposed, analogous to the case described by Dupuytren, in which there were no tubercles in the body, except round a pin adherent in the lung.

Both those cases illustrate a lesion which has not been described in any work that has come into Dr. O.'s hands, and which must be of great rarity, since no preparation of it is in the museum of the College of Surgeons, or in that of any other collection respecting which he has made inquiries. Perhaps, however, it has not been sufficiently sought for, and the communication of those cases to the association may be useful, if it excites attention to the subject. As perforations between adjacent mucous membranes in other parts are not unfrequent—witness those between the vagina and rectum, the colon and stomach—this occurrence between tubes so closely adherent as the œsophagus and air-tubes may be *á priori* expected to take place, and the above cases showing that it actually does take place, it is to be inferred that the absence of observations of a similar kind has arisen from its having escaped observation, in consequence of pathologists having not sufficiently searched for it.—*Lond. Med. Gaz.* Oct. 1840.

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7. *Spontaneous Rupture of the Heart.* This accident is sufficiently rare to render the following examples of it interesting:—

Case I. *Spontaneous Rupture of Right Auricle—life continued ten hours.* By William Stroud, M. D.—F. P., aged 29, after anxiety and vexation endured for a considerable time, and after having been liable to profuse bleeding of the nose, during the spring season, for many years, was, on the non-occurrence of this bleeding, subject for six weeks to a sense of fulness in the head, with lassitude and somnolency. On the morning of April 27, 1839, after having returned from Covent Garden Market, he was seized with faintness, giddiness and vomiting, and insensibility. The pulse became imperceptible, and he was apparently in a dying state. He was promptly bled by Mr. Symes, to three pints, recovered a little, continued complaining of great tightness of the chest, and weight at the heart, but died the same evening.

The pericardium contained a quart of blood which had escaped through an opening in the right auricle just below the insertion of the vena cava superior, the edges of which were not attenuated or apparently ulcerated. The author accordingly suggests the prudence of relieving plethoric oppression, even where signs of structural disease in the sanguiferous system are not evident. In this patient the heart was large and loaded with fat.—*Lond. Med. Gaz.* June 12, 1840.

Case II. *Rupture of Right Ventricle—life continued eighteen hours.* Mr. Smith exhibited to the Pathological Society of Dublin, the heart of a man, who for two years previous to his death had suffered from repeated attacks of rheumatism. He never complained of any affection of the heart until the night of the 11th November, when he was suddenly seized with symptoms of collapse, and anxiety about the præcordia; his pulse fell to forty in the minute, his extremities became cold, his countenance pale, and his whole body was bedewed with cold perspiration. He remained in this state for eighteen or nineteen hours, and died upon the 12th. Upon examination after death, the pericardium was

found distended with blood, and a small lacerated opening was seen in the apex of the right ventricle, near the septum: the parietes of the ventricle became gradually thinner towards the seat of rupture; in other respects the heart was healthy. From a table drawn up by Dr. Townsend, it appeared that of twenty-five cases of rupture of the heart, in only three was the right ventricle the seat of the rupture; and of nineteen cases collected by Bayle, but three occupied the right ventricle. Mr. Smith remarked that the case he brought forward he considered interesting from its rarity, but it derived an additional interest from the circumstance that the symptoms would lead to the supposition that the rupture had taken place eighteen hours before death: life being prolonged under such circumstances could only, he conceived, be explained upon the supposition, that a coagulum had blocked up the opening in the right ventricle; he supposed that death at length took place when the coagulum was expelled, and concluded by alluding to the cases recorded by Cruveilhier and others, where a firm fibrinous concretion plugged up the fissure.—*Dublin Journ. Med. Sci.*

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8. *Encephaloid Disease of the Bones, Liver, and Lymphatic Glands of the Chest and Abdomen.* By Mr. Smith.—A man, 77 years of age, remarkably large and muscular, and having all the appearance of general good health, was admitted to the hospital on the 17th of January, with the ordinary symptoms of chronic bronchitis, attended with emphysema. He remained without any peculiar alteration till a few days before his death, when he was attacked with pneumonia of the lower lobe of the right lung, which terminated fatally on the 23d.

On dissection the usual phenomena of bronchitis with emphysema were discovered, and in addition to these the right cavity of the pleura contained a large quantity of sero-sanguineous fluid. The lower lobe of the right lung presented an example of pneumonia in its third stage; the rest of that organ was free from inflammation. The surface of the lung at the diseased portion was of a bright fawn colour, produced by a stratum of purulent matter lying immediately under the pleura, and when an incision was made into it a large quantity of purulent matter escaped. Throughout the remainder of the lungs, on the surface as well as in the substance, there were a number of encephaloid tubercles of various sizes. The glands of the posterior mediastinum were in a similar state of degeneration. They formed a considerable tumour, and had elevated the pleura from the spine on the right side, and from the aorta on the left. The aorta adhered so firmly to these glands, that it could not be separated from them without some difficulty; but it did not appear to have suffered any compression, nor did there seem to be any impediment to the flow of blood. On opening the abdomen the liver displayed a fine specimen of the *tubera diffusa* of Farre. The tubercles existed both deep in the substance, and also on the surface of that organ, and in the latter situation presented the usual cup-shaped indentations. The gall-bladder and the biliary ducts were healthy. It was observed that the process of softening generally commenced in the interior of these tubercles, so that when one of them in this state was examined, a cavity was found in the centre resembling that of an abscess. The abdominal glands along the course of the aorta and *vena cava* were similarly diseased, and adhered to the neighbouring vessels. The remaining organs of the abdomen were healthy, excepting the spleen, the capsule of which presented the cartilaginous degeneration. The body slipped off the table during the dissection, and one of the vertebræ fractured. This led to an examination of these bones; and on removing a portion of the spinal column opposite to where the thoracic glands were found so much diseased, a distinct circumscribed tubercle, of a pale rose colour, was met with in the centre of one of the bodies of the vertebræ. The ribs, clavicle, and sternum presented similar morbid degenerations. In some of the bones the encephaloid matter was found deposited in the form of tubercles, in others in a state of infiltration, as it were, through their substance. The aorta from its commencement to its bifurcation was covered in various parts with atheromatous and earthy deposits; and in many places the internal coat of the artery was de-

stroyed.—*Ed. Med. and Surg. Journ.* from the *Dublin Journal of Medical Sciences*, July, 1840.

MATERIA MEDICA AND PHARMACY.

9. *Preparation and Employment of the Sesqui-Ioduret of Iron.*—M. Oberdoerffer, a pharmaceutist of Hamburgh, gives the following formula for the preparation of this salt, which he says may be preserved a long time without decomposing:—Mix in a glass vessel half an ounce of iodine, a drachm and a half of iron filing, and an ounce of water; when the reaction is completed, the mixture is to be slightly shaken until it becomes of a clear green colour, due to the ioduret of iron. Then dilute it with four ounces of water, filter and also pass some water through the filter. Afterwards add to the solution two drachms of iodine, which is readily and quickly dissolved. A deep reddish brown liquor results, to which a sufficient quantity of water is added to make the weight of the whole ten ounces. Each drachm contains about four grains and a half of iodine. This preparation has been long employed at the General Hospital, Hamburgh; its effects are the same as those of the ioduret of iron; it must be given internally, however, in smaller doses. The best form for its administration is in syrup.—*Zeitschrift für die gesammte Médicin*, June, 1840.

In our Number for February last, (p. 449,) we gave a formula for a syrup of ioduret of iron, which, from considerable experience, we can recommend as a most valuable preparation. It can be preserved for a long time without becoming decomposed, and produces the best effects of the two articles which enter into its composition. The comparative value of this and the sesqui-ioduret must be decided by future experience.

10. *Socotrine Aloes.*—"This plant (the aloe) has rendered Socotra famous from the earliest period. It is found growing on the side and summits of the limestone mountains, at an elevation of from 500 to 3000 feet above the level of the plains. The plant appears to thrive only in parched and barren places; its leaves are plucked at any period, and, after being placed in a skin, the juice is suffered to exude from them. This is afterwards carried principally to Muscat, where the price varies according to the quality, from two to four shillings the English pound. Socotrine aloes, if care were taken in collecting them, would be the finest in the world; but this is not the case, and their value becomes proportionably deteriorated.

"When the authority of the sultans of Kisseen was better acknowledged than at present, they monopolized the whole produce of the island, and stone walls, dividing its surface into separate portions, were carried with immense labour over hill and dale. These still remain, but now any one collects the plant, when or where he thinks proper, and this they only care to do when the arrival of a ship or buggalo creates a demand. Every part of the island affords this useful plant, but more especially the western, where the surface is thickly covered for miles. In 1833, only two tons were exported."—*Wellsted's Tour on the Island of Socotra.* T. R. B.

11. *Dragon's Blood.*—"The trees of this are not usually met with at a less elevation than 800 feet, and they frequently occur as high as 3000 feet above the level of the sea. The trunk, at the height of six feet from the ground, varies from twelve to eighteen inches in diameter, and its height is from ten to twenty feet. The gum exudes spontaneously from the tree, and it does not appear usual on any occasion to make incisions in order to procure it. Two kinds were shown me; one of a dark crimson colour, called *moselle*, is esteemed the best, and its price at Muscat is from six to eight rupees, the Bengal seers. I was frequently assured, that not one-tenth of the quantity which might be pro-

cured was ever collected by the Bedowins. As with the aloes, this appears to be consequent on there being no regular demand."—*Ibid.* T. R. B.

12. *Ointment for Itch.*—Dr. De la Harpe, chief physician of the Hospital of Lausanne, gives in the *Gazette Médicale de Paris* (July, 1840,) the following formula for an ointment which he says he has very successfully employed in the treatment of upwards of 400 patients. Flowers of sulphur 16 parts, sulphate of zinc 2 parts, powder of white hellebore 4 parts, soft soap 31 parts, lard 62 parts.

The mean duration of treatment with this ointment was in 1836 eighteen, in 1837 fifteen, in 1838 eleven, and in 1839 ten days.

MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

13. *Spasm of the Glottis dependent on some unknown sympathy, or some remote influence possessing no traceable communication.*—Professor Porter made some interesting observations on this subject to the Surgical Society of Ireland, a report of which we transfer to our pages from the *Dublin Medical Press*, (29 Ap. 1840.)

The records of surgery, Prof. Porter remarked, are full of cases which lead us to believe in the existence of this affection. A very remarkable case of the kind is given by Mr Kirby in the second volume of the Dublin Hospital Reports, in which a piece of beef stopped in the œsophagus below the cricoid cartilage, and in which the man died of spasm of the glottis without any sign or appearance of pressure on the larynx sufficient to account for death. Dr. Stokes gives a case of spasm of the larynx from the stoppage of a piece of money in the œsophagus. Perhaps one of the most satisfactory cases of the kind occurred in a child which was left alone in a room by its mother, playing about. On her return, she found it in a state of suffocation, and brought it to the Meath Hospital. On examining the fauces, I thought I could feel something in the œsophagus. I administered a brisk emetic, and this iron ring which I hold was thrown up out of the œsophagus. The child was suffering from violent spasm, and would, in all probability, have died if the ring had not been rejected, and yet any one who inspects it will perceive at once that it could not produce such a degree of pressure on the œsophagus as to endanger life. Another case in which a piece of soft bread stuck in the œsophagus of a child was attended with similar symptoms of suffocation, and relief was obtained by pushing it down into the stomach with a probang. All these cases you will say are presumptive, but not positive proofs of the affection I speak of. I turn now to two cases to prove that there may be such a thing as spasm of the larynx from such influence, and that this unknown sympathy may be carried so far as to destroy life. In July, 1837, I was called to see a case of acute laryngitis; the case was attended by myself and a gentleman well known as an excellent stethoscopist. I went, and finding the man in a state of suffocation, opened the trachea. He was pronounced by the stethoscopist to be labouring under acute laryngitis. After the operation the man expressed great relief; he appeared as well as any person I ever saw after an operation, and yet in the course of three days he died. On examination after death, I found the larynx as sound and healthy as ever I had seen it in my life; death had been produced by the bursting of an aneurism of the aorta. Yet, so urgent were the symptoms of spasm of the glottis, that the man would have died in a few hours if he had not been operated on. But perhaps this case does not go far enough. It may be said, that the aneurismal tumour might have pressed on the recurrent nerve, and that this by paralysing one set of muscular fibres might have caused the rest to act spasmodically.

I come now to speak of a different case altogether, a case in which there could be no pressure likely to affect the functions of the glottis. I think it was in the

month of December last, a child was brought to the Meath Hospital, who was said to have swallowed a stone. I examined him with the stethoscope, and found the usual indications of the presence of a foreign body in the trachea. In the course of a few hours after admission, the child was seized with a paroxysm of suffocation and difficulty of breathing, resembling that which occurs in acute laryngitis, and appeared almost moribund. I made a free incision into the trachea, with perfect relief to the child, but could not succeed in finding the stone; the breathing became quite relieved, the mechanical obstruction remaining still the same. He remained tolerably quiet for a few days, until the wound of the trachea began to close, when the symptoms of suffocation again returned, and to such a degree as obliged me to open the trachea again. I operated with the same success as before, and every thing went on well until the wound began to heal, when the recurrence of spasmodic symptoms obliged me to operate a third time. I now kept the wound open, every thing went on well, and in a short time afterwards the stone was expelled by coughing, in the natural way, and not through the wound. This proves that there may be spasm of the glottis from a remote influence, and independent of any direct irritation of the larynx, for in this instance however the stone might interfere with the passage of air into the lungs, it never interfered with the functions of the larynx, or brought life into danger as long as the opening in the trachea remained pervious. Here then are cases to prove that there may be spasm of the glottis, independent of direct irritation of the larynx, and connected with some remote influence, and attended with symptoms of such intensity as to require an operation to preserve life. There is another point in the last case I detailed, which I shall direct attention to, although it does not exactly bear on the subject under consideration. I have now in my memory a recollection of four cases of foreign bodies, loose and moving freely in the trachea, in which an operation was performed, and yet the foreign body was not got rid of for a considerable time. The first of these cases occurred in 1837, in the practice of Mr. Cusack. Before the operation, the foreign body could be felt moving so freely up and down the trachea, that we were sure it would be expelled with considerable force, and shut down the window sash, lest it should be driven through the open window and lost. The boy was operated on, but the foreign body was not expelled, nor could it be got out. It was thought necessary to enlarge the opening in the trachea once or twice, but without any effect. At last the boy's father got tired, and took him down to the county of Waterford; while he was on the journey the stone was thrown up through the natural passage. Here is a stone taken from the trachea of a child, on which I operated some time since. You will perceive that its long diameter is greater than the transverse diameter of the trachea of a child three years old. If it was thrown with its long diameter, in the long diameter of the trachea, it might have been expelled by a fit of coughing. In conclusion, I may observe, that I have seen some instances in which foreign bodies lay in the trachea for a considerable time, without exciting much inconvenience. In a case operated on by Dr. Houston, a double tooth with large fangs, lay for a considerable time in the trachea without causing much annoyance, and Mr. Liston has given a case, of a sharp piece of bone lying in the trachea for six months.

Dr. Beatty observed that Prof. Porter's observations went to establish, what he, Dr. B. believed to be the fact, viz:—that spasm of the glottis is capable of being produced by a variety of causes, and that authors such as Kopp, who attributes the disease in children to enlargement of the thymus gland, or Dr. Lee, who attributes it to paralysis of the nerves of the larynx, have taken a narrow and imperfect view of the question. Their views are not to be looked upon as explaining the nature of spasm of the glottis; for the cause of the disease, as Mr. Porter has shown, was not single but manifold. Some cases which he had already brought before the public, bore on this view of the case, for he had shown, that irritation in a distant part is not unfrequently the cause of spasm of the glottis. He was convinced from circumstances which had come under his notice, that spasm of the glottis was one of the earliest symptoms of incipient hydrocephalus. He had seen it occur in children, who had afterwards exhibited

unequivocal symptoms of hydrocephalus, verified by dissection, and in whom, no trace of laryngeal disease could be discovered. In almost every one of the cases, the most prominent symptoms were crowing inspiration and paroxysms of suffocation. He did not, however, mean to say, that the spasm of the larynx was to be referred in all cases to irritation of the brain, for it is often seen in connection with enlargement of the thymus gland, and other affections. The consideration of this subject was also important, as leading to a more accurate examination in all cases where any symptom of spasm of the glottis appeared among children. Some children have the crowing inspiration at a very early period of infancy; they awake out of sleep with it, and are apt to lose their breath from trifling causes, as for instance, from the act of swallowing fluid. The symptom is too often overlooked, or if noticed, is frequently attributed to disease of the stomach, but the practitioner who is acquainted with its real nature, will pay the most watchful attention to the state of the brain. The cases brought forward by Professor Porter, showed that spasm of the glottis may be superinduced by the agency of remote causes. The fact of irritation of the larynx from disease of the brain, could be understood to a certain extent, for the influence of the brain on the muscles of the larynx, was a point established by repeated observations. There is another affection however, which, although merely one of function and not connected with organic disease, appears in some instances capable of producing very violent spasm of the glottis. Dr. Beatty had witnessed some instances of this, and had seen it go very far, in fact so far, that many persons would look upon it as demanding an operation. On these grounds Dr. Beatty looked upon Professor Porter's communication, as one of great interest.

Dr. Houston said a circumstance had occurred to him, which tended to bear out the views put forward by Prof. Porter. The case to which he alluded, occurred when he was a student. It was one of aneurism of the arteria innominata, just where it lies on the trachea. It was a flattened sac, not as large as a walnut, simply adhering to the outer surface of the trachea, without any communication with it, or without exciting any inflammation or morbid change. Yet the patient died with symptoms of croup—with violent spasmodic contraction of the muscles of the larynx, incessant cough, and difficulty of breathing, but without any appreciable sign of pulmonary disease. On examination after death, the glottis was found quite pervious, and there was no reason to think that the pressure of the aneurismal tumour could be such as to give rise to the fatal termination.

Professor Porter said that a case similar to that alluded to by Dr. Houston, had been given by Mr. M. Collis, and that the preparation was in the museum at Park street.

Dr. Geoghegan said there could be no doubt that disease of the brain was sometimes the cause of this spasm of the glottis. There was also another cause which was known to produce it, he alluded to painful and difficult dentition.

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14. *On Nervous or Spasmodic Asthma.* By Robert J. Graves, M. D.—It is evident, that to account for the spasmodic symptoms of asthma, we need not have recourse, with Doctor Clutterbuck, to the diaphragm or intercostal muscles, but to the muscles of the trachea and bronchial tubes themselves; on the whole, therefore, we may conclude, that those who have returned to the opinions professed by our predecessors, are not so much mistaken as their opponents pretend. Even when the paroxysm is intense in degree and duration, where the patient is obliged to sit up half the night; where any attempt to lie down produces symptoms of asphyxia; where hours are spent in extreme distress with lividity of face and lips, gasping, loud wheezing, and great fulness of the vessels of the head and neck; even under all these circumstances, the attack may be nothing but a fit of pure spasmodic asthma. A person thus affected may spend a whole night in the way I have described, and yet, towards morning, he may sleep a few hours, and awake refreshed and comparatively free from dyspnœa, and in the course of the day may be able to go up stairs quickly, run, ride, even hunt without difficulty. I have in my recollection, the cases of several young men subject to severe paroxysms of asthma for five or six nights in succession, and

who, immediately after the paroxysm disappeared, could use any active exercise as well as the most vigorous and healthy of their companions.

These facts establish the existence of a disease deserving the name of spasmodic asthma, and show that very violent paroxysms of difficult breathing may occur in persons free from organic affection of the heart or lung. When, however, any permanent change in the structure of the respiratory or circulating apparatus exists, then such changes become the exciting causes of paroxysms of dyspnœa, often closely resembling true spasmodic asthma, but readily distinguishable from it, if due attention be paid to the history of the patient's sufferings and his state between the fits. I have now met with so many cases of young persons in whom no trace of any organic complication existed, that it seems to me more than probable, that spasmodic asthma is not so rare a disease as is imagined. In a little boy, some particulars of whose case I formerly published, the attacks were frequent, violent, and to all appearance, purely spasmodic; he got a very severe paroxysm of gout (hereditary from both his father and mother) in his foot, and has never since had asthma, though four years have now elapsed, and he has been subject to all the excitement and violent exercises of a public school. Mr. Fleming, now of the Isle of Man, and Sir Philip Crampton, attended with me a young gentleman, aged about twelve, who was subject to violent dyspnœa, increased by even the most gentle exercise; indeed for many months he could not walk even quietly in his room, without incurring the risk of suffocation for want of breath, attended with palpitation, wheezing, and all the symptoms of approaching asphyxia; every remedy we could devise was tried most perseveringly for a year, without the slightest benefit, when he got typhus fever, from which he narrowly escaped, but since his recovery, he has never had even the least vestige of his former complaint. These two cases exemplify, in a remarkable manner, the influence which the general state of the constitution often exerts on local affections.

Asthma, like all other nervous diseases, is subject to the most unaccountable variations, and is most uncertain as to the effects which our remedies, or the influence of physical agencies, produce. The following is an example. In December, 1839, I attended two gentlemen residing in the same street, and each about forty-five years old; neither was liable to any other disease, and they were both short and stout; on a very cold morning I found one of them very ill indeed; he had not slept at all during the night, and had every moment been on the point of smothering from asthmatic dyspnœa. The extreme violence of the paroxysm he attributed to the fact, that his bed-room chimney had smoked occasionally during the night, and the weather was so cold, that he was afraid to open the window to let out the smoke. I ordered him to change his room, and I then proceeded to visit his neighbour, and found him sitting in a room full of smoke; he apologized to me for introducing me into so disagreeable an atmosphere, and explained, that when the fit of asthma became very bad, the only sure means of obtaining relief, which he knew of, was to get a good coal fire lighted in the grate, which being done, he made his servant occasionally obstruct the progress of the smoke up the chimney, and thus maintain a certain density of smoke in the room; this never failed, he assured me, to bring relief. This gentleman was of very active habits, was agent to several large properties, and consequently obliged to travel much about the country; experience had proved to him, that he could derive no benefit from turf smoke, and therefore he never stopped at any inn where they had no other fuel but turf, as he felt himself insecure unless he could procure coal smoke in case of an asthmatic attack. Such *idiosyncrasies* will ever baffle the researches of the mere morbid anatomists, but afford a useful lesson to the practical physician.

The phenomena of this disease are calculated to throw much light on the nature of what has been termed wheezing. A person subject to asthma, who has been breathing tranquilly the whole evening, may be attacked towards midnight with difficulty of respiration, and a wheezing so loud as to be heard on the stairs; this will continue for several hours, and then terminate, in some with a copious discharge of sputa, *in others without any expectoration whatever.* When

we apply the stethoscope to the chest of a person so affected, we hear a great number of bronchitic rales, showing that the larger and smaller tubes are both engorged; this is a matter of frequent occurrence in cases of dry asthma, where there is no expectoration, and where the fit terminates in a few hours, without leaving behind the slightest trace of pulmonary derangement. Hence we are led to the conclusion, that sounds of various characters and remarkable intensity may be produced without any inflammation whatever, and in fact without any remarkable alteration in the secreting functions of the bronchial mucous membrane, and that these sounds may wholly disappear where there has been no expectoration, and consequently where the bronchial tubes have not been cleared out. This is a fact worthy of being held in memory. Stethoscopists, when they hear bronchial rales, are apt to attribute them to the existence of bronchial inflammation; but here, with distinct proofs of the absence of inflammation, you may have a *maximum* of bronchial rales, and in the space of a few hours, you may not have a single sound at the very points where so many were audible before. It is obvious, therefore, that some of the received doctrines on the subject of bronchial rales, are still open to discussion. The practical inference, however, to be drawn from this fact is, that we should study such rales with great attention, and in connection with other signs and symptoms, lest we be induced to treat antiphlogistically a case in which depletion might be uncalled for or injurious, an error by no means unfrequent among those who rely too exclusively on physical signs.

As to the treatment of spasmodic asthma, I have nothing to add to what is generally known, except that it is often serviceable to stupe the whole chest during the fit with flannel wrung out of water, as hot as can be borne; and that, in some, much advantage is derived from small but very frequently repeated doses of ipecacuanha wine, mixed with an equal portion of good tincture of castor.—*Dublin Journ. Med. Sci. Nov.* 1840.

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15. *On the Exanthemata and Enanthemata.* By Dr. Eisenmann. Linné appears to have been the first to point out the analogy which exists between the cutaneons eruptions and those of the mucous membranes. But since the publication of the works of Rœderer, Broussais, Bretonneau, Louis, Cruveilhier, Andral, &c., this analogy may be regarded as proved. The name enanthemata has therefore been applied to the latter eruptions, and they, like the exanthemata, constitute characteristic symptoms of special maladies. Dr. Eisenmann, in his long and elaborate essay, proves the perfect similarity of the symptoms, progress, and termination of the eruptions which occur on the mucous membrane with those seen on the cuticular surface. He shows that pustular, vesicular, erythematous, &c. eruptions are common to both surfaces; that the termination in suppuration, resolution, desquamation, &c. equally occur in both forms; the last, indeed, desquamation, being now clearly proved by the researches of Boehm and Henle, who discovered the debris of the epithelium of the intestines amongst the mucous and feculent matters passed during the continuance of these diseases. He also shows that these enanthemata are contagious and epidemic, the same as the exanthemata.

M. Eisenmann divides the enanthemata into five genera, to which he has in the meantime added a sixth, to include an anomalous form of disease. The following are the genera he describes:—

1. Erythema of the mucous membrane, terminating in desquamation, a form of disease distinctly described by Boehm and Henle.

2. Vesicular eruption of the mucous membrane; observed and described by Jahn, as occurring on the palatine arches during measles.

3. Papulæ of the mucous membrane. Several species of this form have been described, as aphthæ, the papular eruptions seen on the throat and fauces by Rœderer in gastric fever, and those seen so commonly on the same parts during the influenza of 1837.

4. Pustules of the mucous membrane, as seen in the aphthæ and eruptions of the mucous membrane in dothin-enteritis.

5. Fungi or tubercles of the mucous membrane, as has been frequently seen and described in typhoid fevers, in malignant puerperal fevers on the vaginal mucous membranes, common in dysentery, and in diphtheral inflammation of Bretonneau.

6. The eruptions which have not yet been classed, as the patches described by Boehm in the neighbourhood of the ileo-cæcal valve, and which seemed to be formed by a morbid state of the glands of Peyer.—*Edinburgh Med. & Surg. Journal*, Jan., 1841, from *Hufeland's Journal*, March, 1840.

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16. *On Rabies.*—By M. Breschet.—Doubts have lately been raised as to the contagious nature of the poison of rabies, and M. Breschet, in order to determine this point, read a paper before the Royal Academy of Sciences, detailing experiments which he had made with M. Dupuytren thirty-five years ago, which seem to prove beyond a doubt the contagious nature of the poison.

Some diseases proper to one class of animals are not developed spontaneously in others. Such appears to be the case with rabies, which seems to be peculiar to the genus *Canis*, but more especially to that well known species, the domestic dog. It is from this species that the disease is usually transmitted to others of the Mammalia, and to man.

Rabies in man is never a spontaneous affection, nor the result of a combination of moral or hygienic causes; in every case it may be traced to the inoculation of rabid matter. It cannot be doubted that the reason why hydrophobia and rabies have been confounded arises from having overlooked the difference of those nervous affections where there is exhibited horror at the sight of fluids, difficulty of swallowing, &c., and the true communicated rabies. In this last affection, art, unfortunately, is never of any avail: whilst the symptomatic hydrophobia of the pernicious hydrophobic fevers, for example, is not necessarily fatal—or if so, only in consequence of a peculiar concatenation of circumstances.

Such are M. Breschet's views, founded on the following experiments:—MM. Breschet and Magendie collected a quantity of the saliva of a man who died of rabies, and introduced it under the skin on the dorsal region of a dog. Thirty-eight days after this inoculation, the animal was affected with violent rabies. It was made to bite other dogs, and these were all similarly affected. In continuing these experiments it was observed that the disease failed to manifest itself, or was only developed with great difficulty when the contagious principle had passed through three or four animals successively; it generally, indeed, failed to produce the disease in the third transmission. If this fact should be confirmed by subsequent experiments, it will prove the singular fact, that this poison loses its deleterious properties by passing from one individual to another of the same species.

M. Breschet, from his experiments, ascertained that, in general, symptoms of rabies came on from the twentieth to the thirtieth day after the animal was bitten. In several cases, however, he has seen three months elapse before rabies made its appearance. In many of the rabid dogs the horror at the sight of water was wanting, and these animals even drink with avidity the water which was presented to them—a fact which proves beyond a doubt that rabies and hydrophobia are two very different and quite distinct morbid states.

M. Breschet's experiments also prove the communicability of rabies from carnivorous to herbivorous animals. An ass bitten by a mad dog took on all the symptoms of acute rabies at the end of three weeks. Similar results were afforded by sheep, only that in them the disease was less intense.

The foam collected from the mouth of the ass and of other solipeds was introduced by M. Breschet beneath the skin of several dogs, and after a period of incubation of from twenty-five to forty days, produced true rabies. This experiment was several times repeated, and always with the same result; proving the transmissibility of the poison of rabies from herbivorous to carnivorous animals —a fact denied by several veterinary practitioners.

The saliva of rabid dogs was also inoculated on rabbits and guinea-pigs, and, in almost every instance, after a short period, these animals fell victims to the

poison, without, however, exhibiting any symptom usually considered as characteristic of rabies.

Similar experiments on birds of different species, as fowls, ducks, crows, and birds of prey, gave negative results as to the exhibition of the phenomena of rabies. All, however, died rapidly; whilst others, on whom similar wounds had been inflicted, but were not inoculated, continued to live.

M. Breschet also made several experiments to determine whether the blood was altered in rabies. He often attempted to inject the blood of a rabid dog into the veins of a healthy dog, but as this was found to be both a difficult and hazardous operation, after a few attempts it was abandoned. He afterwards obtained the blood of the rabid animal by bleeding, and, after washing it with distilled tepid water, the fluid was injected into the vein of a healthy animal. In all these experiments, though frequently repeated, M. Breschet found it impossible to communicate rabies; and he therefore is inclined to believe that the poisonous matter of rabies, whatever it be, resides in the saliva. The foamy saliva is in reality an altered humor—a matter in a truly morbid state, and the vehicle of a deleterious principle of a true rabid virus, but the nature of which is still unknown. M. Breschet then regards rabies as a virulent and contagious disease, and not the effect of a moral affection.—*Ibid.* from *Seances de l'Acad. R. des Sc.*, Sept. 21, 1840.

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17. *On the Uncertainty of the Signs of Peritonitis and on a New Character of that Disease.*—By Luigi Sementini.—The chief object of this memoir, is to prove the fact which the author says he has tested by constant observation for upwards of forty years, namely, that in all cases of peritonitis, in whatever part of the abdominal cavity the inflammation is seated, there is pain in the pubes and upon the great trochanters; which if not spontaneously felt is always developed by pressure, and of which the severity is directly proportionate to that of the peritonitis.

This fact, which is said to be confirmed by the clinical observation of others, the author believes is explicable by the relation of the nerves of the parts in which the pain is felt to the peritoneum, and by its connection with the fasciæ and muscles about them. In addition to its value in the diagnosis of even the most obscure and latent cases of peritonitis, in all of which this sign is present in a degree proportioned to the severity of the disease, the author has found it of value as an indication of treatment, and has obtained great benefit from the application of leeches and blisters over the trochanters instead of on the abdominal walls.—*B. & F. Med. Rev.* from *Annali Univ. di Med.* Sept. 1840.

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18. *Treatment of Lead Colic with the Sulphuric Lemonade.*—M. Aran, in an interesting memoir on this subject in the *Journal des Connaissances Medico-Chirurgicales*, (August, 1840,) states that twenty-five cases of lead colic have been treated in the Hôpital Beaujon with the sulphuric acid lemonade, as recommended some years since by M. Gendrin,* and that it effected a cure in every one. It afforded relief on the second day, and the cure was complete by the fifth day.

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19. *Pure Tannin a Remedy for Excessive Perspiration.* By Dr. Charvet.—Sweating is a morbid symptom which is often so serious and inconvenient, that the practitioner is obliged to combat it by special remedies. The acetate of lead, which has been extolled of late years, sometimes causes inconveniences which hinder many practitioners from employing it in cases where its use seems clearly indicated. Pure tannin, employed as an anti-sudorific, appears to be free from these disadvantages. The author has employed it for two years at the hospital, and in his private practice, and though it has not succeeded in every case, it has in almost all.

He prescribes it in the form of pill, and in the dose of from two and a half to

* See this Journal for May, 1832, p. 233.

ten centigrammes (half a grain to two grains) in twenty-four hours, generally in the evening, with or without opium, which neither checks nor favours its action. The first time he administered it was in the case of a phthisical patient, who was already in a state of marasmus, and whose cough, fever, and oppressed breathing, were less troublesome than the general perspiration with which he was inundated every night. The patient asked for some medicine against the perspiration, which he considered the sole cause of his sufferings, and was ordered twenty-seven milligrammes (about three-fifths of a grain) of tannin. The next morning he said he had passed a good night, and hardly felt moist when he awoke. The repetition of the same dose every evening was sufficient, during several weeks, to suppress the perspirations entirely; but they returned as soon as the medicine was omitted. The dose was raised to five centigrammes (a grain), and then to eight (one grain and three-fifths), and always with the same success. The author relates several other cases in support of the anti-sudorific property which he attributes to tannin; they occurred among consumptive patients who had arrived at the last stage of the disease. They are additional examples of the activity with which tannin suppresses sweating, even when the disease from which it arises is beyond the resources of our art.—*Lond. Med. Gaz.*, Nov. 1840, from *L'Expérience.*

20. *Balsam Copaiba in Asthma.*—A writer in the *Bulletin Méd. du Midi* extols the efficacy of copaiva in the treatment of asthma.—*Journ. de Méd. et de Chirurg. Prat.*, March, 1841.

21. *Coup de Soleil.*—"One fact I may relate, which will bring in a palpable state, before my readers, the fiery heat of these regions (the coast of Arabia) in the summer months. At this season, in 1821, the British Frigate Liverpool was proceeding from Muscat to Bushire; the weather gradually increased in warmth; double awnings were spread; the decks kept constantly wetted, and every precaution used to prevent the exposure of her men; yet in one day, from a species of *coup de soliel*, she lost three lieutenants and thirty men. If, for however brief a period, they exposed themselves to the sun they were struck down senseless; vertigo followed, accompanied by foaming at the mouth. In the greater number of cases, sensation never returned. The frigate's main deck at one time is described to have resembled a slaughter-house, so numerous were the bleeding patients."—*Wellsted's Travels to the City of the Caliphs.* T. R. B.

SURGICAL PATHOLOGY AND THERAPEUTICS AND OPERATIVE SURGERY.

22. *Amputation at the Hip-Joint.* By Dr. Porcienko, of Wilna.—It occasionally happens that the femur is diseased to such an extent that amputation, in its continuity, becomes impossible. Under such circumstances, modern surgeons have proposed its disarticulation; an operation which Dr. Porcienko, considering its formidable nature and rare success, and attentively weighing the cases in which it has been practised, pronounces as inadmissible, however pressingly it may appear to be indicated. This opinion he does not found on the amount and difficulty of restraining the hæmorrhage accompanying the operation, but on the very nature of the diseases which it is sought to remove, (which, he thinks, contraindicate it,) and on the insufficiency of the vital forces to resist so formidable a mutilation. At least it is certain that in numerous cases, when the first dangers of the operation were surmounted, and the wound commenced to cicatrize, when, in a word, every thing seemed to promise a favourable result, death has unexpectedly occurred. The following is the history and result of three cases in which the operation in question has been performed:—

Case I.—The first patient was admitted to the surgical clinic (Wilna) with an enormous encephaloid tumour of the right femur, extending from the trochan-

ters to the condyles, engaging the entire circumference of the bone, and externally constituting a rounded tumour. The skin was tense—the veins enlarged and varicose—the tumour was very elastic, and gave no feeling either of fluctuation or crepitation—the leg and foot were much swollen from serous infiltration, as well as from enlargement of the bones. Finally, the disease seemed to affect the femur even above the trochanters. The opposite limb and entire body was emaciated; there was, however, no hectic. The tumour was the seat of violent and rapidly augmenting pain.

It being determined to disarticulate the femur, the operation was performed, 12th March, 1820, by Venceslas Pelikan, according to Larrey's method. The femoral artery being tied beneath Poupart's ligament, the internal flap was scarcely made when so copious an hæmorrhage occurred, that a sponge thrust into the wound did not restrain the blood from gushing from every part of it. Several ligatures were applied, and the violence of the hæmorrhage moderated: but the patient had already lost an enormous quantity of blood. The head of the femur being detached, the rest of the operation was effected with the utmost facility, and the hæmorrhage, on forming the external flap, was inconsiderable. The blood, however, still flowed, guttatim, from the entire surface of the wound, and continued to do so till the whole surface was covered with a styptic powder.

For some days after the operation, the patient was extremely feeble; cordials, &c., were employed, and on the 5th day, the wound suppurated favourably, and, excepting some febrile reaction, his condition appeared extremely promising. Things proceeded, on the whole, favourably, but so slowly, that two months elapsed before cicatrization commenced to be established. The patient then committed a slight error of regimen, which caused a gastric fever, that soon assumed typhoid symptoms, and terminated in death on the 16th of May.

On examination after death, the profunda artery was found to arise above Poupart's ligament, which accounted for the hæmorrhage not having been at all controlled by the preliminary ligature of the femoral artery. The cotyloid cavity was filled with healthy pus, which had, however, found its way through the bony walls, into the pelvis. The only diseased appearance in the abdomen was a considerable serous effusion, its viscera, as also those of the thorax, being perfectly healthy.

Case II.—A female, aged 50, and much debilitated from plica, was admitted to the Surgical Clinic, September 25, 1821. During a cold and wet spring, in which she had been exposed to much hardship, she became affected with severe pain in the left thigh. After a short period, the patient suffered still more severely from alternating sensations of burning heat and icy coldness, and exquisite pains in the thigh, particularly at night. At length the entire left thigh became swollen, and an abscess formed at its inner side, which, on opening, gave exit to an enormous quantity of sero-purulent matter. The patient, however, experienced no relief, and a fœtid discharge continued till a sequestrum, six inches long, came away. At this period the plica of the hair commenced.

The plica was cut after a short time, after which the thigh became again swollen and the seat of the most excruciating pains. Numerous openings giving exit to pus, formed in the soft parts, which, at the date of her admission, were covered with deep cicatrices. The leg was bent on the thigh; the patient could only lie on the back, was exhausted by severe and incessant suffering, and was in an advanced state of marasmus.

During two months an appropriate treatment was adopted, at first with some trifling benefit. In November, however, the thigh became again swollen, fever set in, and a fresh abscess opened without the slightest relief. The matter became diffused throughout the entire thigh, and hectic fever set in.

On the 15th December, 1821, Dr. Porcienko amputated the limb at the hip joint, according to Larrey's method, imputing the enormous hæmorrhage, which had occurred in the first case, to the accidental anomaly in the distribution of the artery. As soon, however, as the internal flap was formed, so copious a hæmorrhage occurred, that all the zeal and activity of his assistants and himself in tying the arteries, restrained it with the utmost difficulty. After the

operation, the patient was in a state of the utmost exhaustion, on account of which, cordials, &c., were administered, but not with such advantage as in the foregoing case.

The next day the wound became extremely painful; violent fever soon set in, accompanied with dry skin, headache, pains in the limbs, dry tongue, and burning thirst, the right hypochondrium being, at the same time, tense and extremely painful on the slightest pressure; the flaps separated, exposing an enormous gaping wound; and, in fine, the patient died on the 12th day.

On examination after death, the ligature was found detached from the femoral artery, which was closed by a firm coagulum; the cotyloid cavity was filled with pus, and its brain carious. The thoracic and abdominal viscera were perfectly healthy. The neurilema of the sciatic nerve seemed somewhat red.

Case III.—On the 27th of April, 1834, Raycha Mordechow was admitted to the Surgical Clinic. Her face was pale and puffed—she was extremely emaciated, and the posterior part of the left thigh was occupied by an enormous tumour extending from the ham to the two trochanters. When aged 25, and in her fourth pregnancy, she was suddenly attacked with pain in the left ham, extending with the most extreme violence along the sciatic nerve, and which only diminished in violence on the appearance of a moveable tumour in the ham. After her accouchement she tried a variety of means without experiencing any benefit from them; on the contrary, the tumour rapidly increased in size, extending along the back of the thigh, so that in ten months she became unable to walk. A vesicle then formed on the heel, which breaking, afforded an ichorous discharge that excoriated the neighbouring parts. When admitted to hospital, the tumour extended from the trochanters to below the popliteal space, the bulk of the thigh being truly enormous. The skin covering the diseased mass was tense and livid, and the veins dilated and gorged with blood. The tumour was no longer moveable, being adherent to the skin, and, partially so, to the subjacent parts. In parts, it was of cartilaginous hardness: in others, commencing fluctuation could be detected. The disarticulation of the thigh being determined on, Dr. Porcienko entrusted the operation to his assistant, Dr. Korseniewski, to whom, (his chief object being to avoid loss of blood,) he recommended the method of Dr. Cole, with some slight modifications which he suggested.

The 3d of May the operation was performed. The femoral artery was compressed at the point where it passes over the pubis. Dr. Porcienko stood in front of the patient, grasping the limb in both his hands, in order to facilitate the separation of the head of the femur at the proper moment.

The operator now made a circular incision five inches below the hip joint, through the integuments, as in an ordinary amputation of the thigh. The second incision, through the muscles to the bone, was also made in the usual manner, after which the femoral, profunda, circumflex, and two large muscular arteries were tied so promptly, that the loss of blood was not greater than in ordinary amputation. A longitudinal incision was now carried from below the great trochanter to the circular incision, which penetrated to the capsule of the joint. The muscles inserted into the great and lesser trochanters were now divided, and Dr. Porcienko now endeavoured to dislocate the thigh, while the operator divided the capsule of the joint, internally, on the head of the femur, and the round ligament being then cut, the separation of the limb was completed. A portion of the capsule was left adherent to the brim of the cotyloid cavity, destined to cover that cavity as recommended by Walther. During the latter steps of the operation the hæmorrhage was so trifling that it was neglected. The operation occupied scarcely four minutes, and the patient experienced scarcely any debility.

The day succeeding the operation the wound was very painful; the abdomen and right hypochondrium were tense and intolerant of the slightest pressure—there was diarrhœa—the pulse small, contracted—headache intense—tongue dry—thirst extreme. These symptoms yielded on the 5th day. On the 8th day the dressings were removed, and a great portion of the wound seemed united

by the first intention. The points where adhesion had not taken place yielded healthy pus.

The 9th day the patient complained of burning pain towards the sacrum, and the wound appearing too red was dressed with lead ointment. The patient's condition now improved so much, that on the 15th day a favourable issue was expected.

On the 17th day, without any appreciable cause, the face became swollen—the wound opened and was dry—the pulse became frequent and small, and the skin assumed a yellow tinge. It is remarkable that no local symptom preceded this change.

18th day.—The right hypochondrium became tense and extremely tender on pressure—respiration stertorous—speech difficult—extreme prostration.

20th day.—The patient died.

On examination after death, the lips of the wound were separated. The brim of the cotyloid cavity exhibited the appearance of commencing caries; all the ligatures were detached, and the arteries closed by firm coagula.

Abdomen.—The liver was enlarged, gorged with dark blood, and filled with small abscesses. The large veins, such as the ascending cava and left iliac vein, were filled with coagulable lymph, and their coats thickened. The sciatic and crural nerves were preternaturally red.

Thorax.—There was sero-purulent effusion into both pleuræ, and the pulmonary pleuræ were covered in points with a thick membrane. The lungs presented a black and red morbid appearance.

Cranium.—The membranes of the brain were congested, presenting a dark red appearance, and there was an unusual quantity of serum in the ventricles.

The amputated thigh was carefully dissected by Professor Bielkievicz, and afforded an admirable example of the diseased structure, termed by Dupuytren, neuroma. The disease had commenced in the medullary structure of the sciatic nerve—commenced at the level of the smaller trochanter, descended between the great adductor muscles and semi-membranosus, semitendinosus, and biceps muscles, which were expanded into broad membranes, covering the diseased mass whose inferior extremity lay between the solei and gastrocnemii muscles. The crural nerve lay on and was closely adherent to the anterior surface of the mass. The cutaneous veins, especially the internal saphena, were very much enlarged. The entire was enveloped by a dense cellular sheath, readily divisible into layers. The sciatic nerve increased in size as it approached the tumour; with the upper part of which it became confounded, so that its fibres could not be discerned. The tibial and peroneal nerves emanated from the inferior part of the tumour, the latter presented its natural appearance, the former was flattened, five lines in thickness, and for the extent of five inches below the tumour, was of a cribriform consistence, without a vestige of filamentous structure.

Dr. Porcienko concludes his memoir by stating, that he rejects amputation at the hip joint, in cases of organic disease, not from the dread of hæmorrhage, but because of the consecutive dangers. All the reported cases, he states, show the frequency of inflammation, and of purulent metastasis, which latter event is singularly favoured by the great number of veins communicating with the immense wound caused by the operation. The cotyloid cavity, also, often participates in the disease of the femur; or, if the disease be constitutional, it is reproduced elsewhere. For all these reasons he insists that the operation should be definitively abandoned in cases of organic disease; but admits that it may be a necessary and valuable resource in traumatic lesions, to which cases, in Dr. Porcienko's opinion, it should be confined.—*Dublin Med. Press*, 30th Oct. 1839, from *l'Expérience*, 10th Oct. 1839, and the *Med. Chirurg. Trans. of the Imperial Academy of Wilna.*

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23. *Extraction of an Ovarian Cyst.*—An interesting case of this is recorded by Benjamin Phillips, Esq. in the *London Medical Gazette* for October last. The subject of it was a young woman 21 years of age, who had had tolerably good health up to the preceding Christmas when she experienced a heavy, but not

intense, pain in the right iliac region; gradually this subsided, and she then perceived a slight enlargement or tumefaction about the umbilical region; this continued gradually to increase, and was accompanied by some pain in the same region. In May the tumefaction so far increased as to have become apparent externally.

In August she applied to Mr. Phillips who satisfied himself that there had been no peritonitis, that there were probably no adhesions, that her distension was fast increasing, and that she was daily becoming less and less capable of getting about, that her health was beginning to suffer, and that she had then probably 15 or 16 pints of fluid in the cyst. He then stated to her the nature of the disease, that the only hope of getting rid of it was by having the tumour extracted through the muscles of the abdomen; he further related to her the results of the operation, and its dangers, and advised her to consider these things and if after doing so she still determined to have it performed that he would undertake it. She soon made up her mind. Two days before that fixed for the operation Mr. P. inquired into the state of the patient's bowels and was informed that they were confined, and that she was constantly obliged to take some rhubarb to induce a sufficient action. He therefore advised her to take a small dose the following morning so as to gently open the bowels. At ten o'clock the night before the operation Mr. Phillips saw the patient and asked her if her bowels had acted properly and was assured that they had. She was in good spirits and expressed a hope that the operation would not be delayed beyond the following morning.

Accordingly on Wednesday morning September 9th, Mr. Phillips performed the operation in the following manner: "The patient lay on a bed. The first incision commenced about an inch below the umbilicus, and extended rather more than an inch and a half. It was necessarry to give the cutaneous incision rather more extent than I at first proposed, because (strange to say, considering how great was the distension) there was three-quarters of an inch of fat upon the abdominal parietes. I dissected, carefully, until I came upon the sac: as soon as I had sufficiently exposed it, I seized it with the vulsella to prevent any difficulty of getting hold of it when emptied. It was then punctured with a trocar, and 330 ounces of a transparent, glairy, albuminous fluid was evacuated: the sac, which was extremely thick, was then drawn out through the opening, which it was necessary to enlarge slightly. The sac had no other attachment than its pedicle; the pedicle was, in fact, the Fallopian tube, to which it was firmly attached over more than an inch and a quarter. Around this tube a ligature was tightly drawn by Mr. Samwell; the ends were cut close, and the sac was detached without the slightest difficulty. Not an ounce of blood was lost during the whole operation; and when it is stated that her heart's action had not been accelerated to the extent of two pulsations during the operation, and that, at the conclusion, the pulse did not exceed 68, it must be evident that the suffering was not great. The external wound was accurately brought together with hare-lip needles, and there was no oozing of blood. From the moment of the operation there was severe pain in the right iliac fossa, which I referred to the strangulation of the tube by the ligature; there was also frequent sickness. To relieve this pain, in an hour after the operation an opiate enema was administered; it produced little relief, and in two hours afterwards a draught, containing thirty minims of the bimeconnate of morphia was exhibited: still the pain distressed her, and in two hours more a pill containing half a grain of the chloride of morphia was administered, and late in the evening another enema, containing forty-five drops of the liquor opii sedat., was thrown up, and a draught, containing tinct. digital. ♏x., acidi hydrocyanic. ♏ij., morphiæ chlor. gr. 1-3d, ordered to be taken every four hours. During the evening, when vomiting supervened, there was an oozing of blood from the wound, but to no great extent. It was not easy to account for it, because no vessel was wounded during the operation. The only point upon which suspicion lay was the ligature around the Fallopian tube; but as there was no evidence of blood being poured out into the abdominal cavity, the suspicion seemed vague.

"Evening, 12 o'clock.—The pain was still considerable, but mainly referred to the right iliac region; the general tenderness was slight; the sickness occasional. The pulse had materially increased in frequency, and the skin was hotter: believing that there was reason to apprehend local peritonitis, I ordered ℞. Hydr. Submur. gr. iij.; Opii, gr. ss. 2ndis horis. Enema Tereb. statim. Hirudines xx. abdom.

"Thursday morning, 8 o'clock.—Pain in iliac region relieved by leeches, but complains of pain in the umbilical region; tenderness on pressure considerable; no tympanitis; nausea still continues; countenance *very* good, pulse 94; heat of skin moderate; bowels not opened. Ordered to intermit Calomel and Opium; to rub in Ung. Hydrarg. ʒj. 3tiis horis; to apply 12 leeches to the umbilical region.

"12 o'clock.—Bowels still confined. Ordered Extr. Col. Comp. gr. ij.; Capsici, gr. ss. omni hora; 12 leeches to epigastrium, where she complained of tenderness.

"7 o'clock.—Pain much abated; pulse 100; bowels still confined. Ordered Mag. Sulph. ʒj.; Acid. Hydrocyanic. ♏ij.; Tinct. Digital. ♏xij.; Inf. Rhœad. Comp. ℥ss.; omni hora.

"Friday, 8 A. M.—Bowels acted *well*, three times, during the night; nausea lessened; pain much relieved; countenance good; pulse 96; abdomen soft.

"2 o'clock.—Can bear pressure; has just had a liquid stool.

"8 o'clock, P. M.—Has had four liquid stools; countenance good; complains of pain—probably, from its moving about, tormina; however, I thought it safer to order—12 leeches; Opiate Suppository; Pulv. Aromat; P. Kino Comp. āā. gr. v. 10 P. M.—Morphiæ Chlor. gr. i.

"Saturday morning, 8 o'clock.—Slept from 10 till 3, when she awoke; more liquid stools; was seen by the resident physician, Dr. Boyd, who ordered an opiate enema, and Pulv. Arom. and Pulv. Kino, āā. gr. v.: has scarcely any tenderness; abdomen soft. Cholera-like symptoms persist 12 A. M., when she was ordered to take Cupri Sulphat. gr. 1-3d, omni hora: this was rejected, and Plumbi Superacet. gr. iij. Ex Paparv. gr. ij. substituted. These were not rejected, but they did not lessen the stools, which were like rice water, and incessant. Through the whole of Saturday these symptoms continued, without peritoneal tenderness, or any approach to a peritoneal countenance, but with incessant vomiting, the extremities becoming blue, but with the mind intact; they persisted, without remission, until five o'clock on Sunday afternoon when she died.

"She was examined on Monday (at 2 o'clock) in presence of Drs. Clendinning, Harrison, Lee, and others: the abdomen was soft and flat; the incised point was nearly healed. When the cavity was exposed, a diffused injection was apparent, but, with the exception of some small patches of lymph, none of the ordinary products of peritonitis existed. In the cavity from six to eight ounces of blood was found; it contained a few coagula, but it was dark in colour. Upon examining the Fallopian tube the ligature was found in its place; but it was evident that, from its hypertrophied condition, it resisted the necessary constriction, (although Mr. Samwell had used much force,) and the extravasation was a consequence of oozing from the extremity of the tube. That oozing, however, had long ceased; for nature had blocked up the vessels. The opposite ovary was not healthy. Upon laying open the large intestines we found them covered with an exudation such as is found in croup—a false membrane: when this was torn off with a forceps, the membrane presented what the French pathologists term an *erosion*, which was, no doubt, the commencement of extensive ulceration, and which was clearly of some standing.

"When the dejections became frequent, the mother of the patient informed me that her bowels were "very delicate;" that she had forgotten to say any thing about the rhubarb on the morning of Tuesday; that she recollected it in the afternoon, when her daughter came in; that the daughter said, "It is lucky, mother, that you did forget it, for I have been twenty times to-day; but do not say any thing to Mr. Phillips about it, or he will put off the operation."

The failure in the present case Mr. Phillips conceives did not result from any vice in the operation, but from the state of the patient's bowels, and he thinks had this complication not supervened that there is great reason to believe the operation would have succeeded. "Up to the moment" he remarks "when that cholera-form affection was developed, 56 hours after the operation, the prospect was most cheering; the abdominal tenderness was greatly abated, the pulse had been reduced to 92, and those who had at first no confidence in the operation, now became sanguine of a successful result. The dangers of the operation, which I had anticipated, were difficulty of getting at or extracting the cyst, the shock of the operation, and peritonitis. In the present case no difficulty was experienced as regards the first two points; and I am fully justified in saying, that the degree of peritonitis was by no means incompatible with recovery. Acute pain followed immediately upon the operation, and continued for many hours: for some time it was a good deal confined to the right iliac fossa, the seat of the ligature, and I was disposed to refer it to the constriction of the ligature; but I am now inclined to think that it was not produced by that, but was excited by the blood which exuded from the cut surface of the tube: it was at first developed at that point, but as the blood was spread over a larger surface of the peritoneum, the pain was also spread farther. I say I am disposed to adopt this conclusion, though I may have no sufficiently satisfactory proof that blood in contact with the peritoneum will at once excite severe pain. I have only two cases to adduce in proof of such an effect:—one was an aneurismal tumour, which had burst into the cavity of the peritoneum; the pain was immediately dreadfully intense: in the other case, the spleen was ruptured by a fall: immediate agonising pain was developed all over the abdomen: about six ounces of blood were found in the peritoneal cavity. In opposition to this opinion, I know that Mr. Gulliver has injected blood into the abdominal cavity, without exciting inflammation, or apparently pain. In our case the ligature had excited no peritonitis; the blood had, but it was not intense, though diffused; the early and energetic treatment employed had prevented its further development, had induced it to enter upon a retrograde course: this, I submit, is proved by the great abatement of pain, the lesser frequency of the pulse, the relief of the sickness, the absence of tympanitis, the ability to lie perfectly straight without inconvenience, the character of the face, and the occurrence of three good stools. The blood had ceased to ooze; the inflammation produced by that which was extravasated was fast abating, and the ligature had not proved itself apt to excite peritoneal inflammation at all. I say, then, that so far as the operation is concerned, it afforded, in the present case, a fair and probable cause to believe that it would have succeeded, if we had not had to contend with the supervening affection.

"My confidence in the operation, when there is reason to believe that there are no adhesions, and that the patient's health is satisfactory, is greater than when I undertook it in the present case; and when we take into account the results of medicine, of tapping, or of the disease left to itself, I think no one can doubt that an operation which, under adverse circumstances, has succeeded nine times out of twelve cases, ought to be resorted to, before complications or counter-indications are developed. We do not hesitate to have recourse to the ligature of large arteries, and to regard it as a justifiable operation, though the results are much less favourable; we do not object to perform amputation of the thigh, although nearly two out of five die; and why should we regard an operation exhibiting such a result as is presented by the operation of extraction of an ovarian cyst with disfavour? Simply because it looks formidable, and because it is new. But it may be said the difficulties are frequent, adhesions almost always occur, and they must materially lessen the chances of success. I know Dr. Seymour has stated that these adhesions exist in 99 cases out of every 100. I am by no means prepared to contradict the correctness of this assertion, because my opportunities of examining these sacs after death amount only to nine cases: in several of these the patient had been tapped, but in not one of them did the cyst adhere, except by its peduncle, whose extent was variable, though never great. In twelve instances the results of the operation of extraction are recorded; of

these there were adhesions in four cases, and in two of them the patient had been tapped; but in neither of those cases did the adhesions constitute a serious obstacle to the removal of the cyst. It may be said that another difficulty may be experienced, by the presence of more than one cyst, and the occurrence of a considerable quantity of solid matter. That more than one cyst may exist in the same tumour at the same time cannot be denied; but although it may be, it rarely is presented; and there can be no difficulty in introducing the trocar into the second cyst, if it be found to constitute an obstacle to extraction. As to the coexistence of a large cyst and a solid tumour, I do not deny that it may happen, but I do maintain it to be a rare exception; and if that rare and exceptional case is presented, the practitioner should be prepared to meet it. In my apprehension the occurrence of peritonitis is the danger; but that is a danger which we do not regard in the same light in other cases. The opening into the abdomen is not much larger than that which is made in cases of hernia. But it may be said peritonitis very commonly follows that operation. In my opinion it more frequently precedes it; the symptoms commonly presented warrant me in coming to that conclusion. But recollect, in the one case we have at the time of operation (for we can choose our time) a comparatively healthy abdominal cavity; in the other we have a greatly injured intestine, and a probably inflamed peritoneum."

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24. *Exploration with an Acupuncture Needle as a means of Diagnosis.*—Dr. Home, assistant surgeon to the forces, relates in the *Edinburgh Medical and Surgical Journal* (July 1840) a case of gun-shot wound, in which he made a novel application of the acupuncture needle, and one from which we conceive the surgeon may derive much aid in forming a diagnosis in certain instances.

A marine, at the encounter in 1838, at Wind-Mill Point, was struck by a ball about two inches and a half above the external malleolus of the left leg. He continued firing for some time, and afterwards walked to the town of Prescott, a distance of a mile and a half. Immediately on his arrival there it was dressed; and, on being examined by the probe, its course was found to run under the *tendo Achillis;* but there being but one wound, and no ball being felt, it was supposed that it had come out during the exertion of walking from the field. Four weeks after, when Dr. H. saw him, the wound was nearly healed, and no sinus existed; but he continued to complain of an impediment in the motion of the muscles of the calf, and, as he himself expressed it, of a sensation of a want of the usual spring in the foot. On careful examination, a deep-seated induration was felt beneath the *tendo Achillis*, which his surgeon attributed either to a deposit of lymph in the course taken by the ball, or to a diseased action set up in the tendon at the point of injury. I felt more disposed to believe that it was really the ball itself, which, from its deep situation, and probably surrounding infiltration of lymph, communicated the sensation of being larger and less firm and resisting than it otherwise would have done.

The tumour, when firmly pressed upon, however, was not in the least degree painful, which seemed to authorize some doubts as to its being really the ball, it not seeming very probable that a foreign body of such recent introduction could have caused so little irritation as not even to excite uneasiness when roughly handled.

It occurred to Dr. H. that the question might be at once decided by exploration with an acupuncture needle: accordingly he slowly introduced one, with little or no pain, in the direction of the tumour, which it had no sooner reached than the characteristic sensation of the contact of two metallic bodies was elicited. A deep incision was then made; and the ball removed, and the patient was soon able to return to duty.

Had this course been at once adopted, the patient might have been rendered fit for duty many weeks earlier; and had it not been adopted when it was, he would in all probability have been invalided, under the supposition that he was afflicted with irremediable lameness.

25. *Alum and Cubebs in Gonorrhœa.*—Dr. Mathieu, in a paper inserted in the Number of the *Journ. des Connaiss. Méd. Chirurg.* for June, 1840, extols the efficacy of the following mixture, employed by M. Ricord, in gonorrhœa:—℞. Pip. cubebæ ℥ij; Alum sulph. ℥ss.—M. Div. in chart No. IX. One to be taken three times a day. Dr. Frederic, of Leipsic, it will be remembered, bears testimony also to the efficacy of this remedy. See this Journal for Nov. 1839, p. 210.

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26. *Osseous Union of a Fracture of the Neck of the Thigh Bone within the Capsule.* By Walter Jones, Esq.—The patient in this case, who was more than 80 years of age, was first seen by Mr. Cole, the house-surgeon of the Stafford Infirmary, on the day succeeding that in which the neck of the thigh bone had been fractured by a fall. Mr. Cole applied a splint to the outside of the limb, extending from the pelvis to the foot, and bound the legs together, the apparatus being completed by a bandage round the pelvis. The patient suffered so much pain, aggravated by a troublesome cough, that Mr. C. removed the splint and bandages. After having allayed the pain and quieted the cough, however, by the aid of laudanum, Mr. Cole re-applied the bandages, and retained them in their position six or eight weeks, when the patient was allowed to get up. During the following spring and summer, he was able to go about with the assistance of a stick; but, becoming the subject of chronic catarrh, he died about a year and a half after the injury had been sustained. The capsule was found much thickened; and it became necessary to divide the shaft of the bone before the knife could be passed round the joint; so near had the trochanter approached to the acetabulum. The direction of the fracture could not be traced, or the bond of union made out, until the bone had been macerated. As the portions of capsule became loose, they were removed with the forceps, "which enabled me," says the author, "to discover, what I believe to be the case, that the fracture was within the capsule." The bone sawn through, and a very accurate drawing of one of its sections, were shown to the meeting.

Mr. Bransby Cooper looked at the preparation which was contained in a bottle, and expressed his conviction that the union existing between the divided portion of bone was not osseous. But granting in this case that the union was by bone, such a circumstance would militate nothing against the often-expressed opinion, that fracture within the capsule of the neck of the thigh bone never did unite by osseous deposit, for, in this instance, the neck had become absorbed, and the head of the bone had fallen down upon the shaft. The union that had taken place had resulted from a deposition from the shaft of the bone, and not from its neck; but he denied that union, except that resulting from the attraction of cohesion, did exist at all. He did not deny that under certain circumstances osseous union of the neck of the femur within the capsule could take place; but for this to be effected it was necessary that the periosteum should be entire, for the purpose of depositing provisional callus, and that the limb should be allowed to remain for a long time in an undisturbed position, with the extremities of the fractured portion in contact. Thirteen or fourteen months would at least be required to arrive at so desirable a conclusion. All the articulating surfaces were subject to the same laws, and the same difficulties were experienced, if attempts were made to produce an osseous union where they had been fractured. The reason for this was obvious, it was a law of nature, and not accidental; the vessels supplying these parts had a particular duty to perform, that of affording a supply of the synovial fluid, and, therefore, could not be devoted to the formation of callus. The same difficulties in union of fractures of flat bones was experienced, because the vessels of the neighbourhood had to supply important organs, the functions of which would be interfered with, provided their vascular supply was devoted to a reparative process. He contended then that Sir A. Cooper was right in asserting that union of fracture of the neck of the femur by bone was the exception to the general rule. He had been to see all the cases which had been announced as those of union by deposition of bone, and he had generally found that the fractures had occurred

in old people, and the bones on both sides were the same, the necks of the thigh bones having become absorbed.

Sir B. Brodie, having had the preparation taken from the bottle and handed to him, gave it as his opinion that the union was osseous, and not of such a kind as would have been presented, had the deposit, according to Mr. Cooper, taken place from the shaft of the bone and the trochanter. The shortening process consequent upon old age, had doubtlessly been going on to a considerable extent, and this probably both before and after the receipt of the accident. He believed that it was not doubted that union of the neck of the thigh bone within the capsule did take place in certain cases, but of course it was by a different process from that which was obtained, in fractures of the shafts of bones. Some years ago he had made some experiments on the mode in which fractured bones united, and he had come to the same conclusion as Dupuytren, without having been aware that he had been pursuing the same inquiry. The result of these experiments had satisfied him that union at first depended more upon the neighbouring cellular tissue than upon the periosteum, whatever part the latter might afterwards play in the process. He might take this opportunity of remarking, that he had found the most successful plan of treating ununited fracture, to be that pursued by Mr. Amesbury, and consisting in the binding of the limb in an immovable apparatus, by which the extremities of the fractured bone were kept in a state of forcible apposition for a long period. The plan was very a painful, but a very successful one. He had succeeded in procuring union, by this mode of proceeding, in one case, in which the fracture had been ununited for two or three years, and a seton had been passed through it without benefit, the arm remaining dangling and useless. In the experiments he had alluded to, only one case of union by ligament occurred, and this was in a fracture of the femur of a rabbit. He had endeavoured to account for this deviation from the general rule, but had not succeeded. He had also instituted some experiments with the view of preventing union, but had not been successful in his efforts. It was true that he had found that by placing a ligature on the femoral artery, the reparative process in a fracture of the thigh bone had been delayed in its commencement for a week or a fortnight, but at the expiration of that time union went on as though no such operation had been performed—*Lancet*, December 5, 1840.

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27. *Effect of Tying the Femoral Artery on the Union of Fracture of the Thigh Bone.*—The following curious case is related by Mr. B. Cooper. A man was admitted into Guy's Hospital with compound fracture of the femur; there was so much tension of and injury to the soft parts, that it was thought unadvisable to put the limb in splints. During the night spasm came on, and the femoral artery was lacerated by a portion of the splintered bone coming in contact with it. A ligature was placed upon the vessel, and the fracture united so quickly, that Mr. Key remarked of the case, that the quickest way of producing union of fracture of the femur, appeared to be by tying the femoral artery.—*Ibid.*

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28. *On the practice of placing the finger over the orifice of the vein, for temporarily suspending the blood-letting, or of closing the vein.*—The distinguished editor of the *Edinburgh Medical and Surgical Journal* reprobates, (No. for Jan. 1841,) in very strong terms this practice, as filthy, dangerous, and unnecessary. He says—"1. It is filthy, because it applies to the lips of the wounded vein the secretions of another person; for there is no finger, be it ever so well washed, that is not covered with perspirable matter, which, when applied to the edges of the wound in the vein, acts as a poison.

2. The practice is very dangerous. The great majority of instances of inflamed vein are produced by this foul and pernicious practice of placing the finger over the orifice of the vein. Authors have perplexed themselves to explain the origin of this dreadful and unmanageable accident, and have ascribed it alternately, to a foul or rusty lancet, to a blunt lancet, to washing the wound with sponges, to dressing it with unclean linen or charpee, and to several other pieces

of practice unnatural, unnecessary, or ofttimes dirty. But they seem not to be aware, that the accident most frequently follows this mode either of temporarily suspending the blood-letting, or of closing the vein. We have seen a considerable number of accidents of this kind; and it has always been observed or turned out on inquiry, that the finger was applied once or twice over the wound in the vein. We have, both personally in performing blood-letting, observed the rule of never applying the finger over the wound, and in instructing others in its performance we have enjoined the observance of the same rule; and in no instance has it been known that *phlebitis* has followed blood-letting when performed and completed with attention to the rule now specified. Wherever, on the other hand, the practice of placing the finger over the wound becomes general, instances of phlebitis are also common.

We know that it is the custom of many surgical teachers to recommend the practice, and hence it is so frequent. But with this we have nothing to do. The numbers that recommend a piece of bad practice will never make it good, especially in oppositian to manifest physiological and pathological facts. If it be argued that, amidst the general use of this method, the cases of phlebitis are not equally general, we reply, that in a certain number of cases, though the finger is placed over the wound, it does not touch the lips of the vein, but only the wound in the skin, and the adipose tissue. But wherever the finger is applied to the lips of the wound in the vein, inflammation will assuredly follow.

The same is true of venous inflammation after amputation and other wounds. What is the cause of the mortality after amputation and other operations in the hospitals of Paris? Chiefly, we believe, the groping, poking, and rubbing with fingers and charpee over the stump in repressing venous hæmorrhage. The surgeons seldom dress the stump, and much more rarely tie the arteries themselves; and as the whole business of securing blood-vessels and dressing after the limb is lopped off is left to pupils, the rough usage is often very great.

3. This rule of placing the finger over the orifice in the vein is totally unnecessary. Any one who understands the circulation, knows that if he wishes to suspend the bleeding from a vein, it may be most effectually done by placing the finger over the vein below the wound; and if he wishes to stop it altogether, he does so most effectually by untying the bandage, and placing the arm and fingers at complete rest, when, after the escape of the little blood left between the wound and the nearest valve, the bleeding ceases entirely. If it proceed, the gentlest pressure over the vein below the wound is quite sufficient to arrest it.

It is not unreasonable to observe, that this practice of placing the finger over the wound in a vein was much favoured by the army surgeons who returned from the peninsula in 1814 and 1816. They had learned that, in arresting the flow of blood from wounded vessels, especially arteries, the first thing to be done was to place the finger immediately over the bleeding orifice; and this rule they accordingly inculcated on all their friends, who in their turn taught it to their pupils, as a rule sanctioned by experience. And a good rule it is as to arteries, but as to veins decidedly bad. So important is it to attend to little and apparently trifling peculiarities. We believe that, to the rule thus heedlessly and wantonly taught and inculcated upon pupils, many lives have been sacrificed. We cannot allow the direction to pass through the pages of this journal without lifting up a strong, unqualified, and decided testimony against it; and saying to all and sundry who would practise venesection without danger to their patients and without remorse to their own minds—Pray avoid it."

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29. *Treatment of Varices of the Lower Extremities, and of Varicocele, by subcutaneous ligature of the veins.*—M. Ricord has described in the *Bulletin de Thérapeutique*, the process employed by him to obtain the obliteration of varicose veins. In order to cure a varicocele this surgeon begins by shaving the genitals, then he encourages turgescence of the veins, either by causing the patient to walk, or by covering the scrotum with a warm poultice. This done, he carefully isolates the vas deferens from the venous plexus, seizes this plexus in a

fold of the skin of the scrotum, and passes above the vessels a flat lancet-shaped needle, armed with a double thread terminating in a loop. The needle having completely traversed the skin from one side to the other, he lets go the veins, retaining only the skin, and then transmits a second needle, similarly armed, above the veins, entering it by the hole of exit, and bringing it out by the hole of entrance. The venous plexus is thus fixed between two double threads, one above and the other below. The double ends of the threads of each side are next passed through the corresponding loops of the other threads and being drawn in opposite directions firmly tie the vessels under the skin.

Constriction is effected in this operation by means of a particular *serre-noeud*, consisting of a canula, curved like a horse-shoe, and flattened in the middle, to which is fixed a button furnished with a ratchet wheel, which makes it a sort of small tourniquet. The ends of the ligatures are passed into the extremities of this canula and wound upon the button to which they are fastened, so that in turning the former they are stretched on the canula like the string of a bow. The constriction can be increased every two or three days, and usually from the tenth to the twentieth day the vessels are cut through.

M. Ricord has already applied his operation upon twelve patients—affected with varicocele, and in all he has obtained the most satisfactory results. The same method was employed upon nine patients labouring under varices in the legs, some of whom had simple varices, and others varicose ulcers besides. From one to four ligatures were employed in these cases; no bad symptoms supervened, and perfect recovery ensued in every instance.

The treatment of varices and varicocele by ligature of the veins has attracted much attention of late years; and numerous more or less ingenious processes have been tried with a view to accomplish the obliteration of the vessels with the least possible exposure of the patient to the terrible consequences of phlebitis after processes. We believe that none of these secures the patient from the symptoms always to be apprehended when a vein of a certain calibre, and above all an inflamed vein, is divided; and the zeal and ardour of surgeons have been greatly depressed by the fact, that time, which alone can determine the efficacy of their plans, has demonstrated that the cures accomplished were nearly always illusory, and that six months or a year after an operation in appearance completely successful, the varices began to be developed anew, just as if no vein had been tied; so that the patient had been subjected without advantage to the risks of phlebitis, the serious nature of which no one can be ignorant of. Some time having elapsed since a number of patients have been treated for varices by the ligature, the relapses can be shown to be so frequent that we ought perhaps to renounce the operation. It is then to prevent the relapses, and not to modify the ligature, that surgeons should apply themselves, for it is proved that the plans of MM. Breschet, Davat, Velpeau, &c. are easy of execution; this is undoubtedly the case with that of M. Ricord: but of what value is a mode of treatment which at the end of a year leaves the patient with his infirmity.—*Journ. de Méd. et de Chirurg. Pratique.* May, 1840.

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30. *Wound of the Urinary Bladder.*—By Dr. Schütte, of Mullheim.—A healthy man, thirty-seven years of age, fell perpendicularly from a height of about eight feet, on an upright wooden stake several feet long and fully an inch thick. Its end passed into the inner surface of the left thigh, about three inches from the rectum, and ran into the lower part of the urinary bladder above the sphincter vesicæ. The urine flowed continually and insensibly through the wound; but neither blood nor urine passed through the urethra. A catheter was placed in the urethra, and several leeches and lotions of cold water were applied externally; and when the danger of severe inflammation had passed by, bread and water poultices were put over the wound. The patient was allowed only mild food, and in about three weeks the wound had healed without any ill consequences.—*B. and F. Med. Rev.* from *Med. Zeitung*, 7 Oct. 1840.

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31. *Spontaneous fracture of a Calculus.*—M. Leroy d'Etiolles presented to the Academy of Sciences of France, at the meeting of the 22d June, 1840, an example of spontaneous fracture of a calculus in the human body, and he stated that it was the fourth instance of it which he had met with.—*Journ. des Connaiss. Med. Chirurg.* Aug. 1840.

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32. *Case of Enormous Empyema successfully treated by Operation.* By Dr. Heyser.—A man, 22 years of age, was suddenly seized in the month of March, 1839, with pain in his right side, for which he was bled and blistered, and had other appropriate treatment. His breathing, however, becoming more laborious, he entered the hospital on the 28th of April, when he presented the following symptoms:—His respiration was very laborious; he spoke with difficulty and pain; he had frequent troublesome cough, with copious expectoration; had much anxiety; his face was livid; his pulse was small and very quick; the secretion of urine was almost stopped, but his bowels were pretty regular; he complained of feverishness and unquenchable thirst. The right side of the chest was an inch and a half greater in circumference than the left, and gave a dull sound on percussion, and the respiratory sound there was inaudible. The right side of the chest was not elevated during inspiration, and there was considerable œdematous swelling all over that side. Whenever he attempted to lie on the left side he was threatened with suffocation.

On the 30th April, Dr. Heyser, in presence of his colleagues, made an incision between the seventh and eighth ribs of the right side, when there escaped about twenty-two pounds Troy weight of inodorous purulent matter. The patient felt much relieved by the operation, and slept for a space of four hours after it. The wound was kept open by the insertion of a piece of oiled rag between its lips. Calomel and digitalis with decoction of quinine were administered internally.

The morning after the operation, between eight and nine ounces of purulent matter escaped from the wound, and for several days the patient continued in a very satisfactory state. After some time, however, the discharge became more abundant, and somewhat fetid, and at each dressing, which was repeated morning and evening, there escaped from five to eight ounces of fluid.

By the 3d of June the quantity of matter which escaped at each dressing had diminished to four drachms and presented the characters of healthy purulent matter; he breathed freely, and had improved much in his general health. The lips of the wound were therefore allowed to come into contact, and speedily united. The right side of the chest, which before the evacuation of the liquid was an inch and a half greater in circumference than the left, was now nearly one inch less than the left. He could lie easily on both sides; his cough was almost gone; his respiration normal; a dull sound was elicited by percussion over the lower third of the chest, but sonorous elsewhere; the respiratory murmur, although still feeble, was distinct over the upper half of the chest. His pulse and general health were good, and at his own request he was allowed to leave the hospital on the 9th of June.

He returned on the 16th of the same month, his uneasy symptoms having partially recurred; and upon opening the wound, and introducing a gum-elastic tube, about eight ounces of thin purulent matter escaped. Slight feverish symptoms followed, and the respiration was somewhat impeded. Sulphate of quinine and digitalis were again ordered, and, under the influence of these, the discharge of matter diminished, and the wound closed on the 14th of July. The other symptoms completely disappeared; and all the functions returned to their normal state. The dull sound on percussion, and absence of respiratory murmur at the lower part of the right lung still remained. He was dismissed on the 17th of July, and by the end of August was able to enter the military service. *Ed. Med. and Surg. Journ.* from *Casper's Wochenschrift fur die Gesammte Heilkunde*, July, 1840.

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33. *Cure of Fissures of the Anus by Rhatany-root.* By Professor Trousseau.—M. Bretonneau appears to have been the first who recommended the rhatany-root for the cure of fissures of the anus. He was led to try its effect in this complaint from remarking, that constipation is in most cases the cause of the fissures, and the great obstacle to their cure. That this constipation is in a great majority of cases attended with a dilatation of that portion of the rectum immediately beyond the sphincter, which forms thus a place of lodgment for the feculent matters, which sometimes amass there to such an extent, as, when expelled, to cause pains equal in severity to those of delivery. To correct this morbid state of the gut, whether it was accompanied with fissures or not, and restore it to its original tonicity, was the object which M. Bretonneau had in view in employing the rhatany-root. In several cases, then, of this state of the gut, attended with fissures of the anus, he found, that he effected a cure both of the constipation and the fissures, by administering in glyster the extract of rhatany-root, with the addition of a small quantity of the alcoholic tincture of the same.

Since the period when this mode of treatment was first made known, M. Trousseau has cured four cases, M. Marjolin one, and M. Berard, junior, two.

The mode in which M. Trousseau employs the rhatany-root is the following. He administers to his patient every morning a glyster of marsh mallows decoction, or simply of water, with the addition of olive or almond oil, in order to clear out the intestines. Half an hour after the intestine has been emptied, he gives an injection composed of thirty-eight drachms of water; one to two drachms and a half of the extract of rhatany; and five drachms and a half of alcohol, which the patient is desired to retain, if possible. The same styptic injection is repeated in the evening.

When the pain is once moderated, only one glyster is given daily; and when the cure appears to be completed, every alternate day only, for a fortnight longer.

He says he has derived considerable advantage from the employment of an ointment composed of one or two parts of the extract of rhatany to five of the butter of cacao.—*Ibid.* from *Gaz. Méd. de Paris*, 5th Sept. 1840.

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34. *Subcutaneous Section of forty-two Muscles, Tendons, or Ligaments, practised the same day, on the same person, to remedy a general articular deformity.* By M. Jules Guerin.—In a letter addressed to the Academy of Sciences on the 31st of August, 1840, M. Guérin states that on the 25th of that month he performed the section of forty-two tendons, muscles, or ligaments, to remedy a series of articular deformities of the trunk and limbs, caused by the active retraction of these muscles and ligaments. There were twenty-eight openings of the skin required. The following were the parts divided:

Trunk	Pectoralis major	1
The arms	On each side biceps cubiti	2
	„ pronator teres	2
	„ extensor carpi radialis	2
	„ flexor communis sublimis	2
	„ palmaris brevis	2
The forearms	Tendons of extensor carpi ulnaris on each side	2
	„ palmaris longus and brevis	4
	„ abductor pollicis	2
The legs	The sartorius on each side	2
	The biceps cruris	2
	The semi-membranosus	2
	The semi-tendinosus	2
	The rectus femoris	2
	Fascia lata	1
	External lateral ligaments of knee	2

The feet	The tendo Achillis on each side	2
	The tibialis anticus	2
	The extensor communis	2
	The extensor proprius pollicis	2
	The peronei antici	2
		42

The patient only experienced moderate pain or fatigue, and did not complain during the operations, which lasted an hour. An hour afterwards he was in a sound sleep. He was very tranquil the following night and day. No inflammatory accident supervened, and on the third day, the twenty-eight wounds were completely cicatrized. The sections were made in the presence of many distinguished French and foreign surgeons. M. Guérin holds that he is not open to the charge of rashness, as he first established the absolute innocuousness of subcutaneous wounds by numerous experiments on animals, and then verified the same principle in man by a series of operations from the section of one muscle to that of a great number. He purposes to lay an account of his method of operating with its definite results before the academy in a future memoir. —*British and Foreign Med. Rev.* from *Gaz. Méd. de Paris*, Sept. 5, 1840.

35. *Solution and Absorption of Provisional Callus during Typhus Fever.* By Dr. Schilling.—An artilleryman received a fracture of the left femur on the 1st of September, and by careful management the ends of the bone were so firmly united in the middle of November, that he could bear some weight on the foot. Symptoms of typhus abdominalis, however, then set in, and ten days afterwards callus could no longer be felt, and the bones moved as freely and as easily upon one another as at the first examination after the reception of the injury. In six days more the patient died. The examination exhibited no trace of callus; the broken surfaces were bloody, like those in a recent fracture, and were surrounded by a sac-like membrane, which contained some black bloody fluid.—*Brit. and For. Med. Review*, from *Medicinische Zeitung*, September 16, 1840.

36. *On the Employment of large Doses of Tartarised Antimony in the Treatment of Articular Dropsies.*—M. Gimelle, who some time ago published a series of facts, illustrative of the utility of tartar emetic in hydarthrosis, has continued his observations, and finds that when an articulation is the seat of synovial effusion, the same treatment is the most effectual for procuring speedy resorption. In twenty-eight cases the emetic tartar was given in increasing doses, commencing with four grains in the twenty-four hours, and increasing two grains daily till the dose was sixteen, eighteen, or twenty grains per diem, with the invariable effect of determining the resorption of the liquid in a space of time, varying from eight to sixteen days. Of twenty-eight cases of effusion of synovia into articulations, twenty-two had their seat in the knee-joint; three were double, and two were in the shoulder-joint; one was in the elbow, and one in the ancle. All the patients took the emetic tartar in infusion of linden tree with syrup of poppies. In eighteen the tolerance was established on the first day, in two on the second, and in two on the third. No accident occurred to any of the patients after the tolerance was established. The dose of twenty grains was never exceeded, and in all the cases the effusion was absorbed in the space of eight, ten, or sixteen days—longest period during which the remedy was administered. In twenty-five cases the pain and stiffness felt in the affected articulations diminished at the same time and degree with the effusion, and when the latter had disappeared, the patients could walk as easily as before they were attacked by the disease. In two cases, however, though the liquid disappeared in the ordinary time, the pain remained in one case for a month and in the other for forty days. In one case the remedy was carried to twelve grains without benefit, and as it was one of very old standing, it was thought proper to relinquish the medicine.

We give the following cases, as they are very interesting proofs of the value of the treatment employed.

Case I. A man, aged seventy-three, was affected by a very large hydarthrosis of the left knee, which extended into the hollow of the ham, where it formed a tumour of the size of the fist, which disappeared on strong pressure, and became visible on each side of the patella. M. Pasquier prescribed the emetic after the form of M. Gimelle. The dose was successively carried to 16 grains; the patient experienced no inconvenience, his appetite continued good, and on the sixteenth day all the signs of effusion into the articulation had disappeared. Two days afterwards the patient was dismissed entirely cured.

Case II. On the 10th of September, M. Gimelle was called to a student, aged twenty-one years, with an hydarthrosis of the right knee, which had been treated without success during six weeks by leeches, blisters, compression, frictions, and embrocations. M. Gimelle prescribed the tartar emetic. The patient's appetite continued good, and he had no inconvenience. The does of twelve grains was not exceeded, and fourteen days after this treatment was commenced there was no trace of synovial effusion, the patient feeling merely a feebleness of the limb.

Case III. A healthy female, aged twenty-three, in a journey from Tours to Paris, caught cold during the night, and, on her arrival in the capital, experienced pains in the right knee. M. Gimelle considered this case one of commencing hydarthrosis, and prescribed without delay a gummy potion with four grains of tartar emetic and an ounce of syrup of poppies. Five or six vomitings, and afterwards alvine dejections followed, but the pain was relieved in the night and the patient could move the limb. On the second day the catamenia appeared and the emetic was suspended for five days, during which the pain reappeared and the effusion increased, and the articulation became very red and hot. The emetic was then resumed, four grains being given on the first and second day; it produced three or four vomitings, and as many stools. Tolerance was established on the second day, there was a diminution of the synovial tension, and the patient could bear slight movements of the limb without much pain. On the third day six grains were given, eight on the fourth, ten on the fifth, twelve on the sixth, and fourteen on the seventh; the tolerance continued, and the amelioration was progressive. On the eighth, ninth, and tenth days, sixteen grains were given, and on the tenth day the synovial effusion had completely disappeared.

In none of these cases did M. Gimelle precede the employment of the tartar emetic by local or general bloodletting. Nevertheless, he thinks that if the fever be intense, and the articulation present great heat and redness, or if there be great irritation of the digestive organs, it would be proper to combat these symptoms before administering the emetic tartar. By this preliminary treatment we should diminish the chances of gastric irritation, probably facilitate the tolerance, and consequently the action of the remedy.

The most constant effects of the tartar emetic were diminution in the force and rapidity of the pulse, enfeebling of the voice, fatigue and coloration of the eyelids (known by the name of *yeux cérnes*,) and abundant perspirations during the night. Five patients had vomitings, two during one day, one two days, and two during three days. Eight had very abundant alvine dejections, lasting from one to three days: in three the vomiting and purging coexisted. Sixteen experienced neither vomiting nor purging. In the majority the appetite was unaltered; and in those cases where it was disturbed, it was re-established with the tolerance. The quantity of urine was diminished, which M. Gimelle attributed to the abundant perspirations. All the other functions were performed as in the healthy state. The quantity of food the patients had taken when in health was not diminished, and often increased. Lastly, M. Gimelle saw all the patients some months after treatment, and many of them after some years, and in none did any accident occur.—*Brit. and For. Med. Review* from *Bulletin Général de Thérapeutique*, July 1840.

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37. *Looseness of the Teeth.* By Dr. Graves.—Among the various causes which produce looseness of one or several teeth, none is more common than inflamma-

tion of the alveolar processes and sockets. Sometimes this originates in disease of the tooth itself, or of the gums; but in other instances, the diseased process commences in the alveolar periosteum, and by spreading to the sockets and gums, it gives rise to great pain, swelling, and sponginess of the latter, while it eventually detaches the fangs of the teeth implicated in the attack, from the grasp of the sockets, and thus at last the teeth fall out, though in themselves they exhibit no appearance of decay.

The progress of the disease is accompanied by extreme pain, and as a puriform discharge oozes out from between the gums and the inflamed periosteum, many limit their attempts to local means, and often succeed in effecting a cure by frequent applications of leeches to the inflamed gum, and in very obstinate cases, by incisions freely made through the gums and inflamed periosteum. Last year a patient of mine was thus affected, and thus treated, and although under the care of a most skilful surgeon, and of an eminent dentist, he lost successively a left bicuspis and molar of the upper jaw. His sufferings were for a short time relieved by the extraction of each tooth, but in a few days became as agonizing as ever, when finding all the neighbouring teeth loose, and being told that they also must soon be drawn, he had recourse, in despair, to a celebrated homœopathic doctor, whose infinitesimal doses completely failed; for the patient's sufferings were produced by a direct physical cause, which lay far beyond the limits to which the influence of even the most powerful imagination can possibly extend. Happening to mention his wretched state to me, I immediately recollected, that a year before I had successfully treated him for a periostic affection of the sternum and ribs, and that hydriodate of potash was the medicine which served him most. I recommended him to use ten grains of it three times a day, and had the satisfaction of perceiving a daily improvement, so that pain and inflammation soon ceased, and in about ten days the teeth were all fastened.

The periostitis to which this gentleman was liable was of a rheumatic nature; otherwise his constitution was sound, and he was only thirty-four years old.—*Dublin Journal Medical Sciences.*

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38. *Crural Hernia—Operation—Death.*—Mr. Porter communicated to the Surgical Society of Ireland, the following interesting case:—A man 70 years of age, was admitted into the Meath Hospital on Sunday evening, with symptoms of strangulated hernia. He had a tumour in the left groin, resembling in size and shape, the longitudinal bisection of a turkey egg; above it, the line of Poupart's ligament could be felt, and from a brief examination, Mr. Porter was satisfied, that it was a case of crural hernia. The man vomited, and had considerable pain. As persons at that time of life, bear strangulation of the intestine very badly, and sink very rapidly under its effects, Mr. Porter thought there was no time to be lost, and proceeded without delay to the operation. Previous to this, however, he was anxious to ascertain the contents of the tumour, and with this view, made careful percussion over the whole of its surface. It sounded dull at every spot but one, where there was a slight degree of clearness. This led him to conclude, that it was an old omental hernia, but that a knuckle of intestine had recently slipt down, and becoming strangulated, had given rise to the bad symptoms. In performing the operation, he took very considerable pains to avoid the spermatic artery, and in particular, only introduced as much of the blade of the knife as would be barely sufficient to free the stricture. Having removed the stricture, he replaced the knuckle of intestine with great facility, but when he attempted to reduce the omentum, he found it strongly adherent. This occasioned a considerable degree of perplexity, for Mr. Porter has found by experience, that leaving the omentum in the wound leads to bad unhealthy sloughing, which generally proves fatal, while on the other hand, excision is highly dangerous where there are large veins, it being a matter of great difficulty to prevent hæmorrhage into the cavity of the abdomen. He therefore, adopted the only alternative, which, under the circumstances, appeared to him to be least pregnant with danger. Having carefully divided the adhesions, until the prolapsed portion of omentum was quite free, he re-

turned it with as little disturbance or handling as possible, and closed the wound. The man went on well on the following Monday, Tuesday, and part of Wednesday. He slept tolerably well, had two or three discharges from his bowels daily, and complained of nothing but an old cough, which disturbed him from time to time. On Wednesday afternoon, he said he felt considerable pain in the belly. Mr. Porter examined him, and found a hard tumour near the place where the hernia had existed; this he concluded to be the returned portion of omentum in a state of inflammation. Leeches, purgatives, and all the usual means were tried, without avail, the man's bowels became obstinately constipated, and nothing could move them. The tube was introduced by Mr. Parr, with his usual dexterity, and enemata of various kinds administered, but without effect; symptoms of peritoneal inflammation set in with great intensity, and the man died about forty-eight hours after the first appearance of the attack. On dissection, marks of extensive peritoneal inflammation were discovered. The omentum adhered to the parietes all along the front of the abdomen, and was divided by the incision, which opened the cavity of the latter. The prolapsed knuckle of intestine, was of a darker colour than the rest of the tube, but was otherwise sound. The omentum was hypertrophied and the part which had been protruded was so dark in its colour, and of so offensive a smell, that Mr. Porter looked upon it as gangrenous. The next step was to dissect carefully about the seat of stricture, in order to verify the amount of danger incurred in dividing it. He did not intend to enter into any anatomical disquisitions on the occasion, but merely to state the facts, and these were, that in dividing the stricture, the edge of the knife had gone within half a line of the artery, and had it gone the least bit farther, the vessel must have been wounded. This fact showed the value of Scarpa's advice, and the danger to be apprehended from the proximity of the spermatic artery. Besides, it is sometimes difficult to say whether the hernia be an inguinal or a crural one. A very curious feature in the case was, that the man should have gone on so well for three days after the operation, and then that inflammation should have commenced at one spot, and extended so rapidly over the whole abdomen.

Mr. Hargrave said he had operated on a case of hernia, in which there was a large portion of protruded and adherent omentum. He cut away nearly the size of a small orange; not thinking it advisable to replace it, the patient went on very well for some hours, and then sank apparently of internal hæmorrhage. He would sooner apply a small ligature to restrain venous hæmorrhage, than run the risk of effusion into the abdomen.

Mr. M'Coy mentioned a case of old inguinal hernia which had become strangulated. After removing the stricture, he found that a portion of omentum was so strongly adherent, that he could not separate it without a very tedious dissection. He left it in its situation, and closed the wound. The man recovered and remains still with a tumour in his groin.—*Dublin Med. Press.* January 8, 1840.

MIDWIFERY.

39. *Hæmorrhage into the Abdominal Cavity after Labour.*—An interesting case of this is related in the *Lancet*, (5th Sept. 1840,) by Mr. Warwick. The subject of it was a female ætat. 28, apparently in perfect health, who was taken in labour two or three weeks before her expected time. Labour pains came on in the morning, and Mr. W. was sent for about five in the afternoon. He found the os uteri dilated to about the size of a half crown; parts generally soft and dilatable; pains recurring at regular intervals, but weak and unfrequent. The patient was rather restless. The labour progressed gradually but slowly for about two hours, when suddenly uterine contraction came on; one pain expelled the head and shoulders; another the body, placenta, and a large coagulum of blood immediately afterwards. The uterus contracted at once to its usual size

after delivery. The patient was faint and much exhausted. A quarter of an hour afterwards Mr. W. found her still in the same condition, and she replied when asked how she was, that she was flooding violently. There was no unusual flow of blood externally, however, and the uterus remained contracted. She soon afterwards revived so much that Mr. W. left her about 8 o'clock. She continued to all appearance doing well for two hours, when she again became faint and restless: convulsions came on, and she died before Mr. W. could return.

On *post mortem* examination, about 20 ounces of blood were found in the abdominal cavity; the uterus was contracted to the size of an infant's head; its anterior surface was fissured in several places, the fissures varying from half an inch to an inch in length, but not extending deeper than through the peritoneal covering.

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40. *On the danger of injecting Fluids into the Uterus.* By M. Hourmann.—M. Vidal recently recommended the employment of injections into the cavity of the uterus for the cure of various affections of that organ, and stated that he had found their use very efficacious, and never followed by any unpleasant symptoms. Bretonneau, Ricord, and others who had made use of this practice, had, however, arrived at a very different conclusion, as they found these injections liable to produce many disagreeable effects, acute peritoneal inflammation and death.

M. Hourmann relates a case where violent abdominal pain, followed by metro-peritonitis, was caused by means of injecting a decoction of walnut leaves into the uterus, for the cure of an obstinate leucorrhœal discharge, which had been traced to come from the cavity of that organ. The patient recovered in consequence of a violent attack of hæmorrhage from the uterus, occurring most opportunely within forty-eight hours after the administration of the injection.

M. Hourmann, wishing to ascertain whether these dangerous symptoms could be produced from a portion of the fluid having passed through the Fallopian tubes into the cavity of the abdomen, found, on injecting fluid into the uterus after death, that such was actually the case. M. Nelaton, in repeating the same experiments, observed a still more extraordinary circumstance. The liquid injected into the uterus of a woman who had died of an attack of erysipelas of the face, did not penetrate into the Fallopian tubes, but distended one of the veins of the broad ligament of the uterus, pushing before it bells of air.—*Ed. Med. and Surg. Jour.* from *Journal des Connaiss. Méd. Chirurg.* July, 1840.

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MEDICAL JURISPRUDENCE AND TOXICOLOGY.

41. *Temperature of the Body after Death.*—It is, probably, a prevalent opinion, that the body after death soon acquires the temperature of the surrounding air, particularly if it be lightly covered. However true this may be, as to the external parts, it would seem, from the observations of Dr. John Davy, to be far otherwise in the internal organs, even many hours after dissolution. The following abstract is obtained from a paper in his "*Researches Anatomical and Physiological*," and it may be of some use to examiners, in deciding, how long since, a body has been dead.

The first table relates to deaths that occurred in the British Military Hospital at Valetta, in the Island of Malta in 1828 and 1829. The subjects were all soldiers, and their bodies were in almost every instance removed immediately after death, to a large, airy, and comparatively cold room, covered merely with a sheet and placed on a table of wood.

	Age.	Day of Death.	Disease.	Time of Examination after death.	Temperature of the Room.	Temperature under the Heart.
1	23	Aug. 6, 1828.	Acute Rheumatism,	3½ hours	86°	113°
2	27	Do. "	Sudden,	6 hours	86	108
3	25	Aug. 24, "	Fever,	4½ hours	80	97
4	21	Sept. 11, "	Acute Dysentery,	4½ hours	82	103
5	23	Oct. 16, "	Acute Rheumatism,	14 hours	69	88
6	24	Nov. 4, "	After Amputation,	12 hours	68	93
7	23	Nov. 8, "	Acute Dysentery,	3 hours	66	98
8	33	Dec. 1, "	Apoplexy,	2 hours	62	88
9	23	Dec. 3, "	Consumption,	5 hours	61	90
10	28	Jan. 31, 1829.	Hepatitis,	17½ hours	59	82

In No. 5, the temperature under the lobulus spigelii was ascertained, and not under the heart.

In none of the above cases, according to Dr. Davy, had putrefaction taken place. "It had hardly obscurely commenced."

That these results were not dependent on the warm climate of Malta, is evident from the second series of observations which were made at the General Hospital at Fort Pitt, Chatham, England.

	Age.	Day of Death.	Disease.	Time of Examination.	Temperature of the Air.	Temperature under the Heart.
1	26	Jan. 17, 1838.	Consumption,	28 hours	30°	52°
2	19	Jan. 20, "	Pericarditis,	16 hours	40	67
3	29	Jan. 26, "	Consumption,	18 hours	40	63
4	18	Feb. 9, "	Do.	29 hours	43	57
5	35	Aug. 17, "	Malignant Tumour,	5 hours	68	94
6	40	Aug. 18, "	Chronic Dysentery,	4½ hours	68	93
7	22	Aug. 19, "	Tubercles, &c.	18 hours	68	72
8	26	Aug. 19, "	Dysentery,	16 hours	72	81

In these last cases, the temperature of the brain was also frequently observed, and it averaged from five to ten degrees lower than that of the heart. T. R. B.

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42. *Feigned Deafness.*—"A recruit from Cork who joined the depot of the East India Company at Chatham, alleged that he had almost totally lost the sense of hearing, and the testimony of his comrades from Ireland served to support his statement. Dr. Davies, surgeon to the depot, admitted him into the hospital and put him upon spoon diet. For nine days, Dr. Davies passed his bed during his daily visit to the hospital, without seeming to notice him. On the tenth day, he felt his pulse and made signs to him to put out his tongue; he then asked the hospital serjeant, what diet he gave the man. *Spoon diet*, replied the serjeant. The doctor affected to be displeased, and in a low voice said, are you not ashamed of yourself; the poor fellow is almost starved to death, let him instantly have a beef steak and a pint of porter. The recruit could contain himself no longer. With a countenance expressive of gladness and gratitude, he addressed Dr. Davies, "God Almighty bless your honour, you are the best gentleman I have seen for many a day."—*Marshall on the Enlisting and Discharging of Soldiers*, 2d edition. T. R. B.

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43. *Rupture of the Heart, from external injury or violence*, is probably an extremely rare occurrence. I have only been able to collect the following instances:—

1. A man aged 42, in general good health, was found dead in April 1823, in a chalk pit, in the neighbourhood of Chatham (England), at the foot of a precipice between 50 and 60 feet deep, the greater part of it perpendicular. Exter-

nally, there was no mark of violence or appearance of contusion. The neck of the right thigh bone was found to be fractured. On opening the chest, a quantity of blood was found in the left pleura and the pericardium. The right auricle and ventricle, and the left ventricle were uninjured, but the left auricle and aorta were each ruptured, the former in two places. There were no marks of organic disease in any part of the heart. This case is related by Dr. John Davy, in his *Anatomical and Physiological Researches*, and he states as the result of his examination of authors, that there is but one other case recorded of "rupture of any part of the heart, from a force acting through the medium of other parts, on this organ, apparently free from disease, and in its perfectly normal healthy state."

2. This is noticed by Portal in his Anatomie Medicale. The wheel of a cart loaded with stones, passed over part of the chest of a young man. Death ensued almost immediately, and the left auricle was found open. Chaussier who examined the body, attributed the rupture to compression of the aorta by the wheel, and to over-distension of the auricle with blood, the consequence of that obstruction.

3. Dr. John Gairdner, in the *Edinburgh Medico-Chirurgical Transactions*, Vol. I, p. 662. The subject was a girl ten years of age. The wheel of a loaded cart passed over her body, and her death was quite instantaneous.

There was scarcely any perceptible impression of the wheel externally, and no subcutaneous extravasation, except a very slight one under the left nipple. Not a rib was broken. The abdomen was perfectly natural. In the thorax, the only deviation from the healthy state was rupture of the heart, with extensive laceration of its substance. Both auricles and both ventricles were laid open by the laceration, and the septum was torn to shreds. About one-half of the substance of the heart had burst a way for itself through the pericardium into the right cavity of the thorax.

4. Professor Geoghegan mentions another in the *Dublin Medical Press*, of a girl aged 7, struck by the wheel of a jaunting car. She was instantly killed. On examination, not the slightest external mark of violence could be discovered; but the heart was ruptured throughout almost its entire length. Dr. G. refers to additional instances mentioned by Professor Christison in his lectures.

5. Mr. Jeffery, *London Medical Gazette*, Vol. 26, pp. 464. A smuggler was found dead under the cliffs at Sidmouth, having fallen from a height of about 100 feet, whilst drawn up with some kegs of spirits. There was a few slight bruises about the body, but no penetrating wounds or fractures. The right auricle was ruptured, so as to admit the little finger. He was an individual in good health, and there were no marks of organic disease. T. R. B.

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44. *History of a supposed Hermaphrodite.* By Robert Merry, Surgeon, and its dissection by Sir Astley Cooper.—Mary Bennet, aged 86 years, died in 1840, of a gradual decay of her natural powers. She had resided in Herefordshire for the greater part of her life, obtaining her bread generally as a straw-plaiter, and occasionally going out as a char-woman. She was extremely muscular and powerful, capable of severe labour. As a girl, previous to puberty, nothing is positively known about her, but there was a rumour, that she was not formed like other girls. No menstrual secretion ever appeared during her life; she had nipples, but no protuberant breasts. Her voice was gruff and masculine, as was her general appearance. She was never married, disliked the society of men, and shunned that of women, and during the greater part of her life, inhabited a cottage by herself.

Mr. Merry, soon after death, removed the parts of generation, and gave them to Sir Astley Cooper. "The pudenda and mons veneris had their usual clothing, and upon separating the labia, the glands and corpus clitoridis appeared of a very unusual length, being elongated to two inches. The papillæ of the glans were particularly large and conspicuous, and must have possessed an extreme degree of sensibility. There was a slight depression in the glans where the urethra might have been supposed to exist, but there no opening existed. Much nearer to the pubes, on the lower part of the clitoris towards the perinæum, the

urethra appeared open upon its under side, and some lacunæ were seen there, but under the arch of the pubes, a circular opening existed, which was the urethra, resembling the orifice of the meatus urinarius." The labia projected on each side of the clitoris, but they contained no testes, and the projection was found to consist of fat. A bougie passed readily from the urethra into the bladder. In the urethra, under the pubes, *when its canal was opened*, there appeared a longitudinal opening between the folds of membrane. This opening or slit led directly into the vagina; it was longer from before backwards, than from side to side, and its size would allow a common pen to enter it. The vagina had no os externum, but only this slit from the urethra. It terminated in a well formed os uteri. The uterus was of its usual form, and had a Fallopian tube attached to its fundus, and the ligaments of the ovaria to its side. On the right side, the ovarium remained and had its usual internal appearance, but it was not more than half its natural size.

"This woman, therefore, (concluded Sir Astley,) differed from others in the magnitude and length of the clitoris, in the absence of the external orifice of the vagina, which began from the urethra itself, and in the imperfect development of the ovarium." And to this imperfect development, he ascribes the suppression of the menstrual secretion.—*Guy's Hospital Reports*, for October, 1840.

T. R. B.

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45. *Injurious and poisonous effects of the Hydriodate of Potash and Iodide of Starch.*—Dr. Lawrie, of Glasgow, relates several instances, as coming under his own observation. In one case, two and a half grains of the hydriodate were prescribed daily. After the third dose, dryness and irritation of the throat came on, which ended in all the symptoms of severe spasmodic croup. Active remedies were needed to remove the complaint. Similar consequences occurred in several other persons. To a patient admitted into the Glasgow Infirmary, for a cancerous ulcer at the root of the tongue, a drachm of the iodide of starch (containing only one grain of iodine) was prescribed morning and midday; with extract of hyoscyamus at bed time. After taking ten doses, he was seized with dyspnœa and swelling of the throat, which gradually increasing and not much relieved by an emetic, ended in sudden death. The body was not examined. In another instance, the hydriodate, with infusion of quassia, was directed for sinuses after buboes and secondary ulcers on the thighs. After taking this for about a fortnight, dyspnœa also came on suddenly, which refused to yield to active remedies, and death soon followed. Dr. Lawrie regrets that tracheotomy was not employed. On dissection, the mucous membrane of the larynx and adjacent parts was found œdematous, and the right lung congested.

Dr. Lawrie has no doubt of the iodine being the cause of death, in each of these cases, and that it exerts its poisonous influence on the mucous membranes of the air passages, not as a direct irritant, but indirectly through the circulation, in the form of acute inflammation.—*London Medical Gazette*. July, 1840.

T. R. B.

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46. *Action of Bromine and its Compounds.*—At the annual meeting of the British Association, for the advancement of science, in September last, held at Glasgow, Dr. Reid communicated a paper by Dr. R. M. Glover, "on the medicinal action of Bromine and its compounds." The principal conclusions from the experiments made, to ascertain its physiological action, were as follows:—whether bromine be taken into the lungs in the form of vapour, or in the fluid form into the stomach, or be injected into the circulation, it acts purely as a corrosive or irritant; the action on the primæ viæ is different from that of hydrobromic acid, into which bromine is converted, when absorbed into the circulation. The author extends this observation by analogy to chlorine and iodine and their hydracids. Bromine exerts an action on the rectum, like that of iodine; it is also tonic and diuretic; its remedial virtues are chiefly conspicuous as an external application in the treatment of scrofulous, syphilitic, malignant and specific ulcers; in these cases, it appears to act as an excitant, and perhaps as a mild

caustic; it is also useful in some chronic diseases of the skin. The bromides of potassium, sodium and mercury, resemble much more the chlorides of these bases than the iodides, in their physiological action. The bibromide of mercury has no advantage over the bichloride, as a remedy, contrary to what has been asserted by some French writers. The bromide of cyanogen possesses a double action; in a powerful dose it operates like prussic acid; in a moderate one it produces the most violent symptoms of irritant poisoning, &c.; perhaps the most powerful irritant known. Ammonia is its best antidote. The chlorides and bromides of olefiant gas exercise a remarkable action, introduced either into the stomach or circulation; in the former they produce, in a large dose, death by coma; in a smaller dose, loss of power over the voluntary muscles, sensibility being retained, with difficulty of respiration, from effusion into the lungs; in the latter, when injected into the veins, they cause almost instant death, producing great congestion of the lungs and destroying the irritability of the heart; in smaller doses, death is produced in the same manner as by their introduction into the stomach.—*Athenæum.* October 3, 1840. T. R. B.

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47. *On a Mode of Detecting Minute Portions of Arsenic.*—By Dr. Clark, of Aberdeen. This mode has been applied by the author, to the detection of arsenic in commercial specimens of the metals tin and zinc. Grain tin, made in Cornwall, contains arsenic, which seems to be the occasion of the peculiar smell of the hydrogen evolved from that metal by the action of acids. All the specimens of commercial zinc, that the author has happened to try, were found to contain arsenic. Pure muriatic acid, diluted with distilled acid, is poured upon the metal, and the hydrogen evolved is passed first through a solution of nitrate of lead, and next through a solution of nitrate of silver. Nitrate of lead seems not acted upon by arseniuretted hydrogen, at least, when in very small proportion, but were any sulphur present in the metal, sulphuretted hydrogen would be evolved in consequence, and the solution of nitrate of lead would be blackened, which, however, the author did not observe ever to occur. But nitrate of silver seems immediately to be acted upon by most minute portions of arseniuretted hydrogen. A bluish black precipitate is formed, which, to judge from a qualitative analysis, appears to be an arseniuret of silver. This bluish black precipitate may be collected with remarkable facility, from its falling readily from the solution, which it leaves perfectly clear. Heated in a small tube, so that the matter heated comes into contact with the air, the bluish black precipitate evolves arsenious acid, which, by the liquid tests, may be further satisfactorily recognized. Antimony produces a similar precipitate, so that the mere appearance of the precipitate is not enough, without the production and recognition, by the usual methods of the arsenious acid. By a few evident modifications, this method may be applied to medico-legal investigations.—*Athenæum.* October, 17, 1840. T. R. B.

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48. *On the Tests of Sulphuric Acid when thrown on a Person.* By R. D. Thomson, M. D.—A case had lately occurred to Dr. T. and which was brought before the last session of the Central Criminal Court, which proved that the mode of determining the presence of *free* acid by *mere* testing, was by no means satisfactory. A woman in a fit of rage, threw a quantity of oil of vitriol at the face of a cab master, and before he could wash off the acid, two minutes had expired; the consequence was loss of vision in the eye. But besides having the eye injured, his hat was also discoloured. This was sent to Dr. Thomson, to determine the nature of the agent used. The result was, that this hat, as well as an uninjured one, contained sulphuric acid, as tested by nitrate of barytes and a solution of the soluble matter of both states of this article of dress, afforded an acid reaction. It was therefore necessary to adopt some method which would afford a discriminatory test between the free and combined acid; the usual mode, viz., by boiling with carbonate of lead, and concluding if any insoluble sulphate of lead was formed, that the acid existed in a free state, was found to be totally fallacious, because carbonate of lead, contrary to the opinion stated in works of

medical jurisprudence, decomposes sulphate of soda. Besides, it was shown that many of the so called neutral sulphates exhibit, in reality, an acid re-action upon test paper, as in the instances generally of sulphates of potash, iron, soda, barytes, and also in the cases of alum, &c., and hence the excess of acid attached to these salts, would be apt to act as free acid upon the barytes test. The author, therefore, concludes, that the only demonstrative proof which chemistry affords, is a quantitative analysis. Thus he found the entire hat to contain .356 per cent. of sulphuric acid, probably in the state of alum and copperas, and the injured hat 1.379 per cent.; or in other words, the hat had received from the injury 1.023 per cent. of free sulphuric acid. Here then was afforded clear evidence of the nature of the agent employed, and which could not have been conclusive, if the matter examined had only amounted to a drop or stain.—*Athenæum.* October 10, 1840. T. R. B.

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49. *Hydrated Peroxide of Iron in Poisoning with Arsenic.*—Dr. B. Puchelt the son, records in the *Medicinische Annalen*, (No. 4, Vol. V,) seven cases of poisoning with arsenic successfully treated with hydrated peroxide of iron.—*Gaz. Méd de Paris*, April 18, 1840.

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50. *Lemon Juice the Antidote for Poisoning by Hyoscyamus.*—Dr. Medoro relates in the *Giornale per service di progressi della Pathologia et della Therapeutica*, (February, 1840,) four cases, where the poisonous symptoms resulting from an over dose of hyoscyamus, were instantly arrested by the administration of lemon-juice.—*Edinburgh Med. and Surg. Journ.*, Jan. 1841.

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51. *On the True Nature of the Hymen.* By M. J. J. Virey.—M. Virey endeavours to prove that the hymen is nothing else than the raphe of the median line, dilated and dehiscent in the sexual organs of the mammiferous females, and analogous to the frænum of the *glans penis* of the male sex. In the male the suture of the raphe remains connivent; but in the female, on account of the natural opening of the vulvo-uterine canal, this suture remains distended, stretched, and dehiscent.

From the comparison of the genital organs of the two sexes, he arrives at the conclusions; 1. That the fold of skin called the prepuce is analogous to the nymphæ; and, 2. That the membrane of the hymen is analogous to the frenum of the glans. This, he thinks, is very clearly proved in the case of hermaphrodites, and in embryos at the age when the sexual organs, still imperfectly developed, have not acquired their external development. The penis is then no larger than the clitoris, the urethral canal opens inferiorly, whilst the scrotum is retracted inwardly, and constitutes the vulvo-uterine canal. But at the entry of this canal the raphe is obliged to dilate into a membrane which afterwards splits in its middle. It is thus that the hymen is formed in the female, evidently the same organ as the frenum of the glans in the male, which extends downwards, and forms the raphe in the perinæum.

Nature has not then created, as has been often supposed, in the hymen an express and especial organ for the sexual organs of the mammiferous females; (for it exists in most mammiferous animals, as M. Duvernoy has shown,) it is a simple modification of the same raphe which connects the two halves of the body, and which in one place forms the frenum of the tongue, of the penis, of the clitoris, and is shown clearly in the perinæum.—*Gaz. Méd. de Paris*, June 20, 1840, from *Edinburgh Med. and Surg. Journ.*, Oct. 1840.

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52. *Complete Absence of Menstruation.* By M. Kruger-Hansen.—A woman of about 58 years of age, of a robust constitution, and who had always enjoyed good health, much younger in appearance than she really was, and in whom all the feminine characters were well developed, never in the whole course of her life had any discharge at all similar to the menses. She never had *fluor albus*, or any abnormal sanguineous discharges or sweats, to compensate for the want of the usual monthly secretion. It is added that the sexual appetite was

present, but that she never had borne children. M. Kruger-Hansen, from this single imperfect case, draws the conclusion, that the menstrual discharge is not absolutely necessary to woman. It is obvious, however, that, before such a conclusion could be drawn, it would be necessary to ascertain whether all the organs were present, and well developed. The omission of this renders the case incomplete.—*Ibid.*, from *Graefe's und Walter's Journal*, vol. xxvi, No. 3.

53. *Wound of the Thoracic Aorta.* By Mr. Smith.—A boy, 16 years of age, was stabbed with an iron nail rod in a scuffle with a smith who worked in the same forge with him. The instrument entered the left side between the sixth and seventh ribs, passed through the lung close to its root, and entered the aorta about an inch above the opening in the diaphragm for the passage of that vessel. The boy died about three and a half minutes after the receipt of the injury. About a pint and a half of coagulated blood was found in the cavity of the pleura. The cellular coat of the artery was only partially divided by the instrument, whilst the middle coat and lining membrane were ruptured throughout their entire circumference.—*Ibid.*, from *Dublin Journal of Medical Sciences*, July, 1840.

MISCELLANEOUS.

54. *Increase of Small-Pox in London.*—It will be seen by the following extract from a circular issued in November last, by the Registrar-General, of births, deaths, and marriages, that small-pox is rapidly increasing in England.

"The deaths from small-pox have rapidly increased within the present year. The deaths in the metropolis at the close of 1839 were 5 *weekly;* last week the deaths registered from small-pox amounted to 54. The rate of increase will be apparent from the subjoined statement.

"*Registered in the* 10 *weeks.*

January	5 —	March 14	72, or 7	weekly.
March	15 —	May 23	116, or 12	"
May	24 —	Aug. 1	148, or 15	"
Aug.	2 —	Oct. 10	225, or 22	"

"The deaths from small-pox in the metropolis are now about 5 *daily;* and at the previous rates of increase will, unless prevented by vaccination, amount to 338 by Christmas, or in the next 10 weeks."

55. *Death of Sir Astley Cooper.*—It is with extreme regret that we record the death of this eminent surgeon and excellent man, which took place on the 12th of February, in the seventy-third year of his age.

AMERICAN INTELLIGENCE.

Post-Mortem Appearances in a case of Fracture of the Head of the Femur within the Capsular Ligament. By STEPHEN W. WILLIAMS, M. D., Lecturer on Medical Botany and Medical Jurisprudence in the New Hampshire Medical College, at Hanover.

Mrs. M. N., of South Deerfield, the subject of the following case, was not seen by me until after her death. Dr. Allen, her professional attendant, informed me that he had been called to her, two or three days before, and found her labouring under excruciating pain in the stomach and bowels, succeeded by retching and vomiting, which continued with almost unabated violence to the time of her decease, notwithstanding the judicious application of remedies.

Autopsy in presence of Drs. Sellon and Allen, and my pupil I. L. Tobey. The subject was extremely fat; the adipose tissue upon the sternum was more than three inches thick, and upon her abdomen more than four. In the cavity of the thorax we found the lungs not diseased, but the heart and lungs were pressed upwards by the diaphragm, so that breathing must have been rendered extremely laborious upon any exercise. Indeed, we understood this was the fact before her decease. The heart was healthy, except that it was so much covered with fat as to obstruct it in the regular performance of its functions. The stomach was about the ordinary size, and healthy; the intestines were unusually filled with offensive gas. The liver was little larger than natural: the upper part of it was mottled with yellow and green, and the substance of it was in a state of softening and our fingers easily passed through the rotten mass in all directions. The gall-bladder was unusually distended with bile, as black and as thick as tar. One of the kidneys was also softer than natural.

During the dissection, it was mentioned that nine years before she had had a fall, and fractured what was supposed to have been the neck of the thigh bone. Her surgeons supposed that they had reduced it at the time of the accident, but she ever afterwards continued to be lame, and she never subsequently walked a step without the assistance of friends or crutches. On examining the limb, before cutting into it, we found it shortened, the foot turned inwards, so that if she ever bore the weight of her body on that side, it must have been upon the outside of the heel. The ham-strings were contracted, but the limb itself had not shrunk. There was an old cicatrix upon the upper and inner part of the gastrocnemii muscle of considerable size, which was from an issue which had formerly been opened there, but for what purpose I do not know. The limb affected was the *right* one. Upon cutting into it over the trochanter the same mass of fat presented itself in the cellular membrane as in the abdomen, but the muscles were small. When the knife reached the trochanter, and

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the dissection was made a little more towards the joint, it was discovered that there was *a fracture directly through the head of the bone within the capsular ligament, and that the fracture had never been united.* The ends of the fracture had been worn smooth by attrition, and they were covered by a kind of cartilaginous matter, and an *artificial joint* was thus formed. The divided or split head of the bone was left in the socket, but it had never been dislocated. The dissector removed it with a great deal of difficulty. The other end of the bone was then laid bare to a considerable extent, and sawed off six inches from the trochanter, for the purpose of saving the specimen. Upon applying the saw to the femur it was so soft that three strokes of the saw completely severed it. The earthy portions of the bone appeared to be nearly absorbed, but the gelatinous and animal portions of it were so abundant that there was no shrinking of it as to size. This dissection seemed to verify the assertion of Sir Astley Cooper, that, "when the head of the thigh bone is broken in the socket, within the capsular ligament, the bone never afterwards unites."* It strikes me now that I have seen a specimen in a dead preparation at the Albany Medical College, where I was politely invited to attend a lecture upon injuries of the hip joint, by Dr. March, in the fall of 1839, where the head of the bone was broken within the ligament, and afterwards united. I may, however, be mistaken in relation to the fact. At any rate, I feel pretty confident I saw some specimens where union had been effected, where the fracture was partly within and partly without the capsular ligament.

This case was extremely interesting to me, as I have very frequently been called to cases of injuries of the hip joint in persons over 60 years of age, where I have been satisfied there has been no dislocation, but where the patient has remained permanently lame for life. In some cases I have been persuaded that the injury has been in the ligament itself, and in some I think there must have been a fracture of the head of the bone within the ligament. In some, perhaps, there may have been a fracture of the neck of the bone itself.

It was also very interesting in another point of view, as illustrating the credulity of the public at large in relation to *natural bonesetters.* In the year 1827, a man by the name of ———, styling himself a natural bonesetter was invited into this town by the friends of an old lady, who, several years before, had fallen, and, as she supposed, had dislocated her hip, though all the physicians whom she consulted, and they were pretty numerous, assured her that such was not the fact. From the time of the accident to the time when she saw ———, she never walked without crutches. The long expected day at length arrived when he appeared and was to perform the miracle of reducing the dislocated bone. Public expectation was on the tiptoe, and people gathered from all parts of this and the neighbouring towns to witness his mighty feats of wonder. He examined the patient, pronounced the bone dislocated, declared it could be easily reduced, and set apart the evening for the operation. In the meantime patients flocked to him from various parts of this section of the country, inquiring of him whether their bones were not dislocated, and soliciting his advice and assistance. Hundreds consulted him, some from

* This rule is now known not to be without exceptions.—Ed.

curiosity and some from faith. He declared every one of them to have dislocated bones, some shoulders, some hips, some knees, ankles, toes, elbows, wrists, fingers, &c., &c.; many had nearly all their joints completely out of place, and they had been so for a great number of years, and for from two to ten dollars each he could easily reduce the whole of them, and enable the individuals to walk and otherwise resume their functions with pristine energy. The principal theatre of his operations was a bar-room, and it was said he often had recourse to the jolly god at the bar-room between his manipulations. He generally began by setting every toe and finger in the body before he arrived at the principal joint to be reduced, so that it was no uncommon thing for him to say that he had reduced twenty or thirty bones in one individual, who never before knew that he had a single dislocated bone. And still the gaping multitude looked on and actually believed that he performed all these miracles, and really found every bone dislocated which he pulled upon. Even the evidence of the senses was disregarded, and some who had actual dislocations for years, which could never be reduced, were declared to be restored, although they walked as lame after the operation as before. At this very time there are some who continue to believe that he performed all that he professed to do, although they now, at the distance of almost three years, walk as lame as ever. But the great body of the people are now fully convinced of his charlatanic imposture; and, were he to visit us again to-morrow, he probably would not find half a dozen dupes to operate upon, although it is believed he carried away more than one hundred dollars from this village for his services for a little more than half-a-day. It is said he never visits the same place a second time on account of his impostures.

He visited Mrs. M. N., the patient whose limb we dissected, at Bloodybrook, and told her that her hip was dislocated, and that he could easily reduce it. He accordingly attempted it, and put her to excessive torture, and declared that he had set the bone, for which he was paid ten dollars; and, as he said this was a very bad case, he must have ten dollars more, which her husband promised to pay when the patient entirely recovered. The above dissection abundantly proved the accuracy of his prognostications and the success of his operations, and how completely he reduced the *dislocated thigh!*

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Case of Acute Enteritis terminating in a Sloughing of a portion of the Colon. By Daniel Coate, M. D., of Merrickville, Upper Canada.—The subject of the present article, Robert White, a native of Ireland, about 36 years of age, and with a robust constitution, was attacked with the dysentery in the month of October last. I visited him twice only while labouring under this form of the disease, he residing at a distance of eighteen miles from me. I treated him principally with calomel and opium, with occasional laxatives; it is unnecessary to dwell upon the treatment; suffice it to say, the attack was one of the severest grade, and the treatment as judicious as I could employ under his circumstances, which were indigent in the extreme. From the period of my last visit, (which was on the 10th,) till the 4th of November, I received no account from my patient, at which time I was requested to visit him again. My attention was first directed to an extraordinary tumour protruding from the anus, and about the size of a large fist; on careful examination, it proved

to be a portion of the large intestine "*inverted*," gangrenous in spots: this condition had existed for three or four days at this time. Having washed the portion of the intestine, I proceeded to restore it, which by steady and pretty firm pressure I succeeded in effecting, pushing it as far up the rectum as I could reach, and ordering a T bandage to be firmly applied in order, if possible, to prevent its descending again.

I was now shown a "something" which truly surprised me, when I was informed that it had been discharged per anum by this patient; it had been kept six days in a trough containing water. I brought the substance away with me to my residence, after having stated to the patient and his friends the nature of his case, so much of it at least as was needful for them to know.

On the most careful examination of this substance, I became well satisfied that it was a portion of the large intestine which had sloughed from the upper part of the colon. Its length was about ten inches, composed of all the coats of the intestines. Its situation in the alimentary tract was easily discoverable, by the cæcum or caput coli and the appendix vermiformis, both of which were entire, not having undergone any decomposition, or at least sufficient to prevent them from being easily identified; ulceration in other parts had proceeded to a considerable extent. Upon inquiry and examination, I learned that the patient had passed one or two free stools daily; ate heartily of oat or Indiam meal gruel; felt no pain or definable sensations of distress; his pulse was good; and he uttered a confidence truly incredible, that he would be restored to health and the society of his family. I have not had an opportunity of seeing White since the date of my last mentioned visit; but have reason to be assured that he is alive, and well enough to be pursuing his ordinary occupation as a labourer.

February 2, 1841.

Case of Excision of a portion of the Inferior Maxillary Bone.—By H. H. Toland, M.D., of Columbia, S. C.

August 10, 1835. Toby, a male slave, ætat. 9 years, the property of E. P——, Esq., was placed under my care on account of osteo-sarcoma of the inferior maxillary bone. The disease commenced in 1833, and increased regularly until I saw him. The enlargement extended from the neck of the bone on the left side, to the symphysis, and was so much increased in size as to be in contact with that of the opposite side. The tongue was elevated and misplaced, and mastication and deglutition were performed with difficulty.

An operation being thought advisable, I performed it in presence of and by the assistance of some medical students, on the 13th of August. He was placed in the recumbent position, and an incision made from half an inch below the lobe of the ear to the corner of the mouth, dividing all the soft parts. They were then dissected from the diseased bone and turned down. The bone was next divided on the right side, but near the symphysis, with a small amputating saw, so that all the diseased mass might certainly be removed. It became necessary to expose the superior maxillary bone at its posterior and external portion, so as to have access at the point to which it was desirable to make the section. This being done, and the flap turned up and retained by an assistant, the neck of the bone

was divided just anterior to the articulation with Hey's circular saw. Considerable difficulty attended this part of the operation, depending on the great and sudden enlargement of the angle. The diseased bone was then easily separated from the internal soft parts and removed.

There were no vessels divided that required a ligature. The flaps were brought together and closed by the interrupted suture and adhesive strips. Great exhaustion followed the operation, depending both on the violent exertions made by the patient, as well as the shock given to the nervous system by the pain, &c., consequent to such an operation.

For two days he was restless, complained of some pain in the head, pulse 160 and small. These symptoms, however, yielded to the administration of calomel and opium with laxatives.

On the fifth day the ligatures were removed, the wound having healed.

The portion of bone that remained was drawn inwards by the muscles with which it was connected, so that the teeth did not come in contact with those of the opposite jaw, which, after a few months, being encrusted with tartar, and the gums diseased, were extracted.

The diseased bone weighed half a pound, and was so soft that a probe could be passed through it in almost any direction.

Twelve days after the operation the boy was sent home, being almost well, and much less deformed than might be supposed, after losing so large a portion of the inferior maxillary bone.

He is now in good health, and as useful on the plantation as any one of his age.

Some surgeons recommend the carotid artery to be tied before commencing such an operation, lest hæmorrhage might be troublesome. In this case no vessel was divided that required a ligature; cold water with pressure being sufficient to arrest the flow of blood. Nor do I think it necessary in any operation, either upon the superior or inferior maxillary bones, the actual cautery being preferable in operations upon the former, and in those upon the latter, ligatures can always be applied, without difficulty to the divided vessels, so as to control the hæmorrhage. The operation of putting a ligature on the common carotid is, I think, more dangerous than the excision of either the superior or inferior maxillary bones.

Case of Comminuted Fracture of the Parietal Bone, followed by Abscess upon the Dura Mater—Cure.—By Wm. B. Hall, M. D., Sparta, Tennessee.

A mulatto boy, Henry, ætat. about 10 years, fell from a horse October 20, 1840, his head striking against the projecting corner of a rock, by which the scalp was cut through at the most prominent part of the parietal bone, and that bone fractured and depressed. A neighbouring practitioner was called in, who pronounced the bone sound, and after a few days' attendance brought the integuments together, put on a plaster and left, directing the owner not to remove it until the fourth day, when all would be well. Before the four days had expired, slight excitement came on; the face became flushed and the head somewhat painful. These induced the owner to remove the plaster, when, to his surprise, he found the wound filled with matter, and upon further examination, that the bone was fractured and depressed. He immediately put him in the stage and sent him to me, a distance of 40 miles, with a letter detailing the foregoing circum-

stances. Upon removing the dressing I found a gaping wound, which would receive the largest sized thumb, the scalp puffy and swollen for about the size of the palm of the hand around it. The wound was nearly an inch deep, and filled with a thin fetid pus, which rose and subsided with each pulsation of the brain. After cleansing out this pus the edges of several fragments of naked bone were distinctly observable. The *outer* table of the bone was depressed below the *inner* table, so as to leave openings communicating with a cavity within the cranium, apparently *co-extensive with the puffiness of the scalp.* The extent of the vault depressed was of about two inches in diameter, and of a somewhat circular form. The quantity of pus discharged was equal to two or three table-spoonfuls every 24 hours, and flowed out into the cuplike wound through the openings between the fragments of the depressed and the undepressed bone.

On the 7th September I enlarged the original wound, and with Hey's saw removed a projecting corner of skull. I then removed the smaller fragments of bone, and elevated the larger ones to their proper position. The wound continued discharging the matter which formed in the cavity, in gradually diminished quantities, till the cavity finally filled up and the wound was cured, which was about the middle of November.

The remarkable feature of this case remains to be told. During all the time the patient was under my care, there were *no symptoms of constitutional disturbance from the injury.* He was cheerful, able to run about, and engaged in play eagerly. I learned also, that when he received the fall, he got up immediately, though he was a little sick for some few minutes. After this passed off, with the exception of the slight excitement before detailed, (and which must have been very inconsiderable, as it was not deemed an obstacle to his riding in a hack 40 miles in a day,) no constitutional disturbance whatever, or symptoms of compression resulted from the injury.

Case of severe Injury of the Leg. By Wm. M. Egbert, M.D., of Manayunk.

February 8, 1840. William Bonner, of Manayunk, house carpenter, ætat. 23 years, of good habits, sustained an injury from a large mass of frozen earth falling upon him while in a stooping attitude.

When he was disinterred, and reaction sufficiently established, I ascertained upon examination that the main blow had been received upon the back, in the cervical and dorsal regions, those parts being much bruised and otherwise injured. Both the malleoli of the right leg were broken off entirely, and complicated by an external wound leading into the joint, and opening it wide enough to admit with ease two fingers. The tibia was also fractured transversely two inches and a half above the joint, and the inferior fragment split longitudinally throughout. The superior portion of the fibula was driven through the wound into the earth an inch or two; the foot was bruised considerably. With the assistance of my young friend Dr. Levering, I adjusted the fragments, closed the wound by adhesive straps, and applied the graduated bandage of Scultetus. After venesection, the leg was placed in an appropriate box and quietude enjoined. Slight extension and counter extension were kept up through the night, with the design of subduing muscular contraction and support-

ing the leg while becoming habituated to its situation. Refrigerant applications were ordered to prevent high inflammation.

9*th*. The patient had slept comfortably during the night; much œdema of the foot and leg; pulse 85, full and strong; the tongue furred and skin dry. I removed the extending bands, ordered a saline cathartic and continued the cold applications.

10*th*. Pulse 70 beats in a minute, and much softer; swelling decreased, and complains of but little pain. Regimen antiphlogistic.

11*th*. No change of symptoms worthy of note. The bowels were opened by oleum ricini.

12*th*. The pulse 90, small and irritable; the tongue more heavily loaded and the limb considerably swelled in the region of the injury. The edges of the wound were retracted half an inch and turned outward, exhibiting a pouting aspect. The discharge from the joint considerable, and of a very unhealthy character; no pain; removed the adhesive strips; dressed the ulcer with basilicon ointment; ordered a stimulating liniment applied to the foot and leg, and prescribed a more generous diet.

13*th*. Pulse greatly accelerated, tremulous and typhoid in character, the tongue dry and heavily loaded with a white fur. He was very restless; complained of pungent pain in the leg, which was increased in size; quite insensible to touch, and of a greenish livid hue. A large fungus had shot out of the joint, blocking up the wound entirely, which was two inches long and dilated an inch in width. There was a copious ill conditioned sanious discharge; I ordered a good diet; applied lunar caustic to the fungus, and continued the stimulating embrocation.

14*th*. All the unfavourable phenomena of yesterday aggravated, and the fungus elevated five lines or more above the circumjacent tissue. I excised the fungus as low in the wound as possible; applied the actual cautery; ordered an emollient poultice and continued the other remedies as directed yesterday.

15*th*. Pulse much improved; limb more sensible, and the treatment of yesterday continued.

16*th*. The extremity is quite sensible; the tumefaction declining; the pulse less frequent, and slightly expanded; the tongue is moist and cleaning at the edges. Treatment continued as before indicated.

18*th*. The whole phenomena decidedly more favourable, the leg very much reduced in size, and sensibility more acute, the tongue disposed to clean generally; pulse increased in volume and less impetuous; the ulcer white and healthy at the edges, but the discharge still abundant. I discontinued the poultice and prescribed a wash composed of equal parts of lime water and a decoction of white oak bark.

20*th*. The discharge diminished two-thirds in quantity, and the whole appearance favourable. The caustic kali was substituted for the actual cautery.

28*th*. The ulcer is reduced to one-third its former size, and healthy; a perfect reunion between the fragments appears to be established; the tibia is one-fourth wider than natural at its articulating extremity.

March 12*th*. The ulcer is entirely healed, the swelling is comparatively slight, and my patient can step with the aid of a cane.

May 1*st*. Bonner has recovered completely and is enabled to attend to his ordinary vocation.

July 20*th*. The leg continues sound and healthy, and he enjoys the use

of it, performing partially all its accustomed motions, those of flection, extension and adduction tolerably, but abduction and circumduction with less facility.

The following inquiry is naturally suggested, viz: Why is not the joint anchylosed. The capsular ligament is extremely delicate, and must have been lacerated, as the wound on the external part of the joint admitted two fingers to be introduced between the articulating surfaces of the tibia and astragalus. The synovial membrane must have been detached from its fastenings and the lubricating fluid discharged, yet the ankle is not stiff.

January 2d, 1841. Bonner is gradually recovering the use of his foot. The motions of the ankle are much improved. He walks now with considerable freedom. There is but a slight halt in his gait. The joint appears healthy.

On the present condition of the Mineral Springs at Saratoga.—By Milo L. North, M. D.

To the Editor of the American Journal of Medical Sciences:

Sir—In the belief that many of the readers of your wide spread journal may be gratified to hear occasionally of the progress of such matters as are connected with our profession at Saratoga, I send you a sketch of the state of things here during the three past seasons. The principal street of the village, Broadway, is about one mile in length, running nearly north and south, and one hundred and forty feet in width. There are several streets nearly parallel, and it is crossed by a number at right angles. It lies along the west bank of a hollow or ravine, which is from 10 to 20 rods in width, and gradually deepening as it proceeds to the northeast. The bottom of this ravine is formed of black soil, so soft as to have rendered it formerly very difficult for animals to pass through it except in dry times. Along the surface of this marsh flows a small stream which originates from a fresh water fountain in the southwest part of the village, crosses Broadway near its south end, and following the course of the ravine, it proceeds northeasterly till beyond the bounds of the corporation. Through this mass of mud many of our mineral springs make their passage from beneath: and it would seem that this excavation or hollow in the wide and sandy plains of Saratoga must have been originally formed by the combined action of the fresh water stream, and the numerous gaseous fountains that burst up from beneath an extensive limestone formation on the west side of the hollow, and terminating at its edge. Two of these fountains originally deposited so much lime and other ingredients held in solution by the carbonic acid gas, at their place of exit from the ground, as to acquire respectively the names of Flat Rock and High Rock Springs. Although the surface of the land on the east side of this valley is beautiful and inviting and there are many who have built or are building dwelling houses there, yet the village principally lies on the west side. The soil in the vicinity is light and sandy, and was originally covered with white pine timber. The place is 7 miles northeasterly from the village of Ballston, 22 miles northeasterly from Schenectady, 38 by railroad from Albany, and about 10 miles directly west from the Hudson river, and contains about 2500 inhabitants. Its waters are its only means of prosperity. The *Old Congress Spring*, now owned by Dr. Clark, has almost alone been the cause of building up this famous and beautiful place, and that within the space of 50 years. This celebrated fountain is known not only throughout the principal cities of our own country, but in many places in Europe. The art of bottling has become such that a citizen of New Orleans. or London, or Paris, can, in his own house, acquire a very correct knowledge of its taste and medicinal power. Had not invalids possessed the opportunity of learning the effects of this water at home, the resort to its fountain head never could have been so great. In stating the history of their diseases and remedies they frequently assert that, finding the Congress water to keep their disease at bay while at home, in the failure of other remedies, they

have thus been induced to come to the spring itself. Such persons seldom fail to receive great benefit from the visit. The spring is situated near the south part of the village, a few rods east of Broadway. The following is its composition, as given in the last edition of Steel's Analysis, published by G. M. Davison, in 1838. One gallon or 231 cubic inches contains chloride of sodium, (sea salt) 385.0 grains; hydriodate of soda, 3.5; bicarbonate of soda, 8.982; carbonate of lime, 98.098; carbonate of iron, 5.075; silex, 1.5; hydrobromate of potash, a trace; in all, 597.943 grains. Carbonic acid gas, 311 cubic inches, atmospheric air, 7; gaseous contents, 318 cubic inches.

Let any physician attentively consider the constitution of this water, and he cannot fail to be impressed with its admirable qualities both as to taste and medicinal power. The carbonic acid has most certainly diminished within 20 years; and as this is the principal cause of the pungency of the water, it has become a regular stereotyped report from year to year that this water is losing its "strength." Yet as it is still more than saturated with the gas, and, therefore, all the mineral ingredients are held in solution, which would be insoluble and precipitated without it—this remedy is, in my estimation, not the least deteriorated in its application to the *whole range* of diseases. As the extra carbonic acid appears to produce the vertigo, and sense of fulness across the forehead soon after its being swallowed, much to the annoyance of full entonic habits, the water is probably attended with less troublesome effects than it was 20 years ago. If any one doubts the estimation in which this spring is still held by the public, let him take his station for an hour at the dipping room some pleasant morning in July. It was scarcely possible for the groups to be supplied in the morning till the recent discovery of two or three other springs has, in some measure, drawn off the pressing crowds at the Congress. Before dismissing this spring, I would make a single suggestion to physicians abroad, whose patients consult them about visiting Saratoga. If they feel hesitation about assuming the responsibility of advising the excursion, let a few bottles of the Congress be ordered and the patient be directed to take one each morning early, containing, if necessary, some saline ingredient in sufficient quantity to become decidedly cathartic each day. If the result is favourable there is scarcely a doubt that the journey, water, and baths at the fountain head, will fully sanction the physician's advice.

Within a few years, Mr. Lewis Putnam has discovered and curbed a new fountain about 40 rods northerly from the Congress, which he has named the *New Congress.* It is a delicious water, is highly purgative, deobstruent, and tonic, and contains more iron than any spring in the place. The following is its analysis, made in the summer of 1840, by Dr. J. R. Chilton, of New York: One gallon contains chloride of sodium, 214 grains; sulphate of soda, 1.68; carbonate of soda, 14.32; carbonate of magnesia, 51.60; carbonate of lime, 68.80; iodide of sodium, with a trace of bromide of potassium, 2.0; carbonate of iron, 7.00; phosphate of lime, .21; silica, .84; alumina, .56; in all, 361.01 grains. Carbonic acid, 326.4 inches; atmospheric air, 6.4; total 332.8 cubic inches. This is a favourite spring with many visitants; and if the patient be of atonic diathesis no one can be better chosen for the removal of his complaints.

In the summer of 1839, the *Iodine Spring*, in the north part of the village, was brought into notice. It was analysed by Professor Emmons, of Albany, and also by Dr. Chilton, of New York. Their results are so similar that I transcribe only that of Professor Emmons. In one gallon, chloride of sodium, 187 grains; carbonate of magnesia, 75.; carbonate of lime, 26.; carbonate of soda, 2.; carbonate of iron, 1.; hydriodate of soda, 3.5; total, 294.5 grains. Carbonic acid, 326. inches; air, 4.; total, 330. There are two qualities peculiar to this water: it is lighter in its amount of ingredients and has much less iron than the other fountains. On both these accounts it has proved an acceptable auxiliary in treating diseases in full, plethoric, entonic habits. Even incipient phthisis has never been injured by it, when properly guarded. There were perhaps twenty cases of pulmonary hæmorrhage and tubercles last season, in which the patients remained various periods taking the water with the proper auxiliaries,

and with apparent benefit. It would be wrong for me strongly to recommend the water in this class of diseases without still further trial: but it was very clear last season, both to my partner, Professor Delamater and myself, that inflammatory complaints were less liable to be aggravated in using the Iodine water than that of any other fountain. The resort to that spring is continually increasing; and as it remains very clear a long time in the bottle, it has already been ordered to a considerable extent abroad, and bids fair to become widely known and appreciated. In addition to these three fountains, there were, previous to the last season, the Washington, Columbian, Hamilton, Flat Rock, Hall's and the High Rock, all resembling in their constituents the springs already described, all highly charged with carbonic acid, very palatable, and all resorted to by different invalids for the removal of diseases. Most of these were considered more chalybeate and tonic than the Old Congress.

In the spring of the last year, Mr. D. M'Laren, a gentleman of this village, succeeded, after great difficulties and perseverance, in bringing to the surface, from a depth of nearly 40 feet, two copious fountains, which have ever since been discharging their sparkling contents about five feet from each other, and two or three feet above the natural surface of the earth. The amount of gas is so great that it forces up a little shower of watery globules several inches above the surface of the water in the form of a spray. The whole mass of the water seems violently boiling by the escape of the gas.

A most decided sensation was produced, even in the minds of our own citizens, by the brilliancy and rich taste of these new fountains. Forlorn and despairing patients resorted hither in hopes that these deep and pungent waters might bear from the bowels of the earth some panacea for their sufferings. The well were attracted by the superiority of the beverage in point of taste; and, before the season terminated, this new spring became a matter of general discussion and interest among the strangers; in short, it was the *Lion* of Saratoga. Being only a few rods east of the Pavilion Hotel, Mr. M'Laren named it the *Pavilion Fountain.* The following is the analysis by Dr. Chilton of New York. In one gallon, taken from the west tube, chloride of sodium, 187.68 grains; carbonate of soda, 4.92; carbonate of lime, 52.84; carbonate of magnesia, 56.92; carbonate of iron, 3.51; sulphate of soda, 1.48; sodide of sodium and a trace of bromide of potassium, 2.59; alumina, .42; phosphate of lime, .19; silica, 1.16; total 311.71 grains. Carbonic acid, 359.5 inches; air, 5.3; total 364.8 inches. A very careful analysis was also made here last August, by Mr. James Thombs, a respectable chemist from New York, with results somewhat similar. This has already been widely circulated by the visitants. As Mr. M'Laren supposes the spring not to have been thoroughly matured last season, he intends another thorough analysis this season.

The beneficial effects of those new waters were so great and convincing on various individuals, that, on leaving Saratoga for home, many ordered a supply from this fountain to be bottled and forwarded for their use at home; and, notwithstanding the iron is deposited copiously in the bottles, large quantities were put up and sent abroad. Although this change is no injury in inflammatory complaints, the turbid appearance may so operate as to prevent its general acceptation in the cities. As the water, however, is said to be very gaseous when the bottles are opened, and tastes equally good as if the iron was not precipitated, there can be no reasonable doubt that the medicine which has thus far proved so great a favourite here, will be sought and used abroad.

The *mode of administration* of these various waters above mentioned, is by no means uniform. The potations at the Old Congress have, for many years, been generally performed in the morning only, taken early, on an empty stomach, and in quantities varying from two to ten half pints, in divided portions. In very torpid habits blue pills, calomel, sulphate of magnesia, calcined magnesia, cream of tartar, &c. are added, either in the evening or morning. The New Congress, Iodine, and Pavilion springs, when taken as laxatives, are taken in nearly the same way. Within two hours and before breakfast the operation usually commences, and is completed before noon. The water is probably ab-

sorbed from the stomach with scarcely any abridgement of its constituents, passes through the whole mass of blood, and is thrown off copiously, not only from the colon, in loose, watery dejections, but from the kidneys and skin. It is this thorough ablution, and renovation of the blood, accompanied by a change in all the secretions that renders the operation of these remedies so truly *alterative*. It is this same alterative and prospective effect that brings back many patients who may have left the springs a few weeks previously in a state of discouragement from the perturbation produced by the remedy. Another mode of taking these waters is that of divided portions through the day, in such quantities as the patient can bear without actual catharsis. This plan is also alterative and tonic. It was formerly supposed that the springs which were called chalybeate, such as the Hamilton, Flat Rock, and High Rock, were exclusively appropriate to this process. But, within two or three years, the Congress and the recently discovered fountains have been more taken in this manner than the chalybeate springs, and with manifest benefit to chlorotic, scrofulous, and cachectic derangements generally. A third method was often adopted in the time of Dr. Steel, the former resident physician, viz. that of taking the Congress water in the morning as a cathartic, and then one or two tumblers at 11 A. M. and at 4 P. M. from some of the chalybeate fountains.

The most common *forms of disease* to be found at these springs are the following;—dyspepsia in all its forms, bilious disorders, rheumatism, cutaneous diseases, dropsies, scrofula, intermittent fevers, chronic diarrhœa, neuralgia in all its forms and localities, spinal diseases, nervous diseases in general, nurses' sore mouth, described in your January number by Dr. Backus of Rochester, calculous complaints, enlarged tonsils. The above list is made out from a hasty review of my own case-books, but it does not comprise all the forms of suffering brought here.

Before dismissing the subject of this communication it is proper that *baths* should be considered. The use of these has not been founded wholly on professional dictation. There is a general rush among the sick and the well to the bath houses. Invalids who apply for medical directions *expect* the external application of these saline and gaseous fluids should be combined with their internal use. There is not space for me to enter into the full consideration of the application of baths to the removal of disease. I little knew the responsibility or the power of the remedy till my position here threw that responsibility upon me. After a very anxious search for the truth, I came to the following *criterion* for discriminating between cold, shower and hot baths, viz.—*That in all febrile and inflammatory diseases whether acute or chronic, in short, in all diseases where the lancet is called for, there also will the cold and shower bath be suitable; and where the lancet would be injurious there should the hot bath be used.* Although very many patients have been immersed for ten minutes daily in mineral water at 110° and 112°, carefully keeping the brain so immersed as to preserve it at the temperature of the other viscera, I have not known an instance of unequivocal injury.

By those opposed to the innovation, the languor and faintness produced by the sudden transference of 3 or 4 lbs. of blood from the viscera to the cutaneous surface have been represented to be an injury. But this faintness on coming out of the bath, where it does occur, assists in the revolutionising process of dilating the capillaries of the dermoid system and restoring the blood to its proper channels. It is surprising to see how florid the pale, sanguinous face of the invalid speedily becomes, under the process. When the surface and the extremities have become permanently warm, the hot bath may with great benefit be exchanged for a daily cold shower of half a pailful. This quantity of cold water, suddenly applied in the form of shower-bath has never, under my observation, produced permanent repulsion of the fluids from the surface. In all doubtful cases, where a want of reaction is apprehended, a few quarts of *cold* water, suddenly applied, is much more safe than a larger quantity of either cold or tepid water. *Prolonged hot baths* were tried in a number of instances of rheumatism, followed by distortion of limbs and chalky concretions, last season with decided

advantage. The *cold dash* or a stream of mineral water falling several feet upon chronic, local inflammation and swelling, was occasionally used with benefit. *Warm baths*, from 85 to 97 are the baths commonly taken without professional directions. *Cold baths* are less used than any other form.

But I must not obtrude further on your columns. In conclusion, I would say that, in addition to the delicious and powerful medicines that can be taken cool and sparkling from the bosom of the earth, we have an *atmosphere so dry* that gentlemen who have resided in the village many years, have never seen a particle of mould on their books, boots or harness, and that tinned roofs and spires have long stood bright and glittering; so *balsamic* from the many pines in and around the place as to produce a terebinthinate smell in the lodging-rooms; and so *cool* that the multitudes scarcely ever complain of excessive or prostrating heat, but appear panic-struck at the occurrence of a frigid north-wester even in July. Of *amusements* there are at least a fair proportion compared with other watering places.

That Saratoga is very *accessible* is fully known abroad: and when, in the course of the present year, it shall be connected to Boston as well as New York and Buffalo by railroads, it will bring these fountains, figuratively speaking, to every invalid's door. Even now, a valetudinarian can come from the lower part of North Carolina, all the way by steam in two or three days, and, probably, with less wear and tear than to ride 30 miles, in the interior by stage. These increasing facilities for travelling are one reason of the increasing throngs that resort to these springs.

To my medical brethren, scattered throughout the country and who feel just solicitude to adopt the most promising means for the recovery of the patients submitted to their care, these hasty remarks, through your columns, are respectfully submitted.

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Report of the Obstetric Practice in the Philadelphia Dispensary for the year 1840. By Joseph Warrington, M. D., Accoucheur.—*One hundred and thirteen pregnant women* have been under care during the year. Of these 110 have been safely delivered at full term; 1 aborted at about five months, and 1 at about four months, in consequence of personal injury; 1 died undelivered, in an impracticable labour, resulting in rupture of the uterus.

One hundred and thirteen children have been delivered at term, there being three cases of twins—two with boys, and one with girls. The case of the male child, which died in utero, and the two cases of abortion, are not included in this enumeration.

Fifty-five of the children were boys, and fifty-eight were girls.

Four of these children were stillborn—the death of three appearing to be recent, while in one case there was no doubt but it had occurred some weeks previous to delivery.

Of the other children, one died in convulsions on the third day after its birth; one male child had its urethra blocked up by tuberculous deposit, which was relieved by the introduction of the catheter by Dr. Mütter, and finally cured by diuretics; one female child had occlusion of the meatus urinarius overcome by several introductions of the catheter by myself; one child had hare-lip successfully operated upon by Dr. Mütter; one had a large tumour on the scalp, respecting the propriety of removing which the surgical skill and experience of Dr. W. Poyntell Johnston, were solicited and obtained; one child had icterus, which was cured by minute doses of calomel and bicarbonate of soda. All the other children were doing well when they passed from under the care of an accoucheur.

Of ninety-nine cephalic presentations, fifty-two were in the first position of the vertex, fourteen in the second, one in the third, two in the fourth, and one in the fifth; this last was converted into a first position. Of the remaining twenty-nine the positions were not satisfactorily ascertained.

Of four pelvic presentations, two were in the second position, and one in the fourth position; the other was not satisfactorily diagnosticated.

In seventy-one cases of labour, the average duration was fourteen hours forty minutes—the extremes being one and fifty-two hours.

The average amount of time occupied in the delivery of the placenta, in seventy-six cases, was forty-six minutes, the extremes being five minutes and eight hours.*

Ergot was administered in one case to terminate a labour, which had continued fifty-two hours. It was also given in a case of placenta prævia, to shorten the second stage of labour; also, in two cases of hæmorrhage, after extrusion of the child.

Delivery was accomplished by the use of the forceps in three cases, in which both mother and children did well. In a fourth case they were applied ineffectually, rupture of the uterus taking place, and the woman dying undelivered, apparently in consequence of the excessive size and firmness of the child's head.

There were two cases of profuse hæmorrhage, with retention of placenta, in which ergot was used for the purpose of exciting uterine contractions. Free friction and compression of the abdomen, and removal of the placenta appeared to be the most efficient means of relief, the ergot seeming not to act in either case.

There was one case of adhesion of the edge of the placenta and a considerable portion of the membranes—it was attended by very alarming hæmorrhage, which could not be arrested until the hand was introduced and the secundines removed.

There was one case of hæmorrhage during labour, from an implantation of the placenta upon the cervix uteri. The tampon was introduced and sustained by two assistants, who made constant pressure upon the perinæum with compresses, until the completion of the first stage of labour. Ergot and brandy were then freely administered, (the woman being prostrate from the loss of blood;) the membranes were ruptured artificially, and the hæmorrhage arrested by facilitating the descent of the breech (the original presentation) into the orifice of the uterus; the child was dead, apparently in consequence of the loss of blood through the placenta.

There were two cases of metritis; they recovered under the use of free bleeding, purging, fomentations, and diaphoretics.

There was one case of metro-peritonitis, which was cured by free and repeated abstractions of blood generally and locally, the use of blisters, the administration of calomel, Dover's powders, and the spirits of turpentine.

One patient (of strumous diathesis) became the subject of abscess in both mammæ, from which she recovered, one gland resuming its functions.

There was one case of abscess in the vagina or cervix uteri during pregnancy. It was relieved by mucilaginous injections per vaginam previous to delivery, and apparently cured by a recurrence to the same treatment some weeks after parturition.

Two cases of prolapsus uteri were observed to follow labour. In one case it was probably induced by the patient rising on the second day after delivery, to go into another room, to supply the wants of one of her children; the other patient had been subject to the affection previous to her late pregnancy.

One case of prolapsus vesicæ occurred without any assignable cause, shortly after a favourable labour of only eight hours' duration.

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Gunshot Wound of the Head.—Recovery.—Dr. A. C. Post relates in our cotemporary the *New York Journal of Medicine and Surgery*, (January, 1841,) the following interesting example of this accident, communicated to him by G. W. Hulse, M. D., U. S. A.

James Graham, aged about 22 years, a private in the Regiment of Creek Vo-

* It is proper to remark that the delay in the delivery of the placenta depended in most instances upon its being purposely left to the efforts of the uterus and the voluntary powers of the mother, care being taken not to interfere with the *natural process* of extrusion of placenta, with a view to determine the length of time it might require.

lunteers, in October, 1836, near Fort Brooke, in East Florida, was wounded by a rifle ball, which struck the right parietal bone a little above the lower anterior angle. After receiving the ball, he rose from a sitting posture, and exclaimed to those near, that some one had shot him, but soon fell down into a state of insensibility. I saw him within fifteen or twenty minutes after the injury. He was then insensible, and in a comatose state, and could give no account of himself; the pupils were dilated and immovable, and there was stertorous breathing, with a slow and soft pulse. From an examination of the wound, it was evident that the ball had passed in the cavity of the cranium, though it had not penetrated the dura mater. The symptoms clearly indicated that there was undue pressure upon the brain. The direction that the ball had taken after entering the skull, was found to be upwards and forwards under the os frontis; and the place where it had lodged, as nearly as could be ascertained, was an inch or a little more, from the place where it entered.

A convenient flap was made at the wound, so as to expose the opening into the skull, and to make room for trephining. The projectile had made through the bone a complete perforation, which was smaller than sufficient to admit an ordinary rifle ball, although no fissure could be observed extending in any direction from the opening, and no portion of bone was found depressed.

A trephine was applied, and on removing that portion of bone under which it was supposed that the ball had lodged, it was found lying upon the dura mater considerably flattened, and its diameter so much increased that it would have been impossible to have removed it by the same opening through which it had entered. In the subsequent treatment of the case, there was nothing unusual. The day following the operation, there was increased velocity and hardness of the pulse; about sixteen ounces of blood were taken from the arm, and a saline cathartic ordered. On the second day, pulse softer and less frequent; the medicine had operated well, and there was less insensibility. The patient conversed a little, and asked for something to eat.

In consequence of a march into the territory, I did not see him again for about ten weeks, when he rejoined his regiment perfectly well. But I was informed by Assistant Surgeons Low and Byrnes, who had charge of him in the meantime, that nothing unusual had occurred. The wound of the soft parts healed slowly, a circumstance which has long been observed in gunshot wounds, especially where balls enter when their velocity is great.

—

Coagulation of the Blood fifteen hours after death.—The patient had been delivered a month previously, and had suffered under symptoms, as it was believed, of peritonitis. For this she was bled, and had taken small doses of calomel, which produced severe salivation. An accurate history of the case could not, however, be obtained, and Dr. Dunglison did not see the individual until after death. This ensued after a severe agony, and on examining the head fifteen hours afterwards, the blood that flowed from the arteries of the brain coagulated.

Dr. Dunglison refers to two analogous cases, in which the blood remained fluid in the vessels for a considerable time after death, and coagulated when removed from them. One is stated by Dr. John Davy, in his "Researches Physiological and Anatomical," and the other by Dr. Samuel Jackson, in his account of the yellow fever of Philadelphia, in 1820. (*Philadelphia Journal of the Medical and Physical Sciences*, vol. ii, p. 22.) The latter says, "The veins of the omentum, mesentery, in fact, the whole system of the vena portæ were always distended with fluid blood. It was at first supposed that the blood, being thus fluid, was in the dissolved state, so often mentioned by writers. But Dr. Hewson, wishing to make some experiments, collected portions of it in cups. In the course of ten or fifteen minutes it was firmly coagulated, and this was found in subsequent observations invariably to occur."

Dr. Dunglison observes that in all these cases, including his own, mercury appears to have been largely administered, and it may be a topic for farther investigation, whether this peculiarity be in any manner connected with the free use

of that or other agents.—*Proceedings of the American Philosophical Society*, No. 12, p. 216.

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Flattening of the Head by a fall.—Dr. J. L. Burtt writes to us that the child whose case was noticed in our Number for Aug. 1840, p. 513, had, at the date of his letter, six months after the accident, suffered from none of the consequences which often follow injuries of the head. The shape of the cranium is completely restored, and the child, both bodily and mentally, is apparently in good condition.

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Opinions of Benjamin Franklin, relative to Animal Magnetism, (extracted from a letter to M. De La Condamine).*

Passy, March 19, 1784.

Sir:—I received the very obliging letter you did me the honor of writing to me the 8th inst., with the epigram, for which please accept my thanks.

You desire my sentiments concerning the cures performed by Camus and Mesmer. I think, that, in general, maladies caused by obstructions, may be treated by electricity with advantage. As to the animal magnetism, so much talked of, I must doubt its existence till I can see or feel some effect of it. None of the cures said to be performed by it, have fallen under my observation, and there being so many disorders which cure themselves, and such a disposition in mankind to deceive themselves and one another, on these occasions, and living long, has given me so frequent opportunities of seeing certain remedies cried up as curing every thing, and yet soon after totally laid aside as useless, I cannot but fear that the expectation of great advantage from this new method of treating diseases will prove a delusion. That delusion may, however, in some cases be of use while it lasts. There are in every great, rich city, a number of persons, who are never in health, because they are fond of medicines, and always taking them, whereby they derange the natural functions, and hurt their constitution. If these people can be persuaded to forbear these drugs, in expectation of being cured by only the physician's finger, or an iron rod pointing at them, they may possibly find good effects, though they mistake the cause.†

I have the honour to be, &c. B. Franklin.

—

Transylvania University.—The chair of the theory and practice of medicine in the medical department of this institution is at present vacant, and with a view to fill it in the best possible manner, the board of trustees invite applications for the appointment from the members of the medical profession.

The communications on the subject must be addressed to the *Dean of the Medical Faculty of Transylvania University*, and come to hand before the first of June next, when the appointment will be made. The name of no one but the successful candidate will be made public.

The Transylvania is the leading western school; the vacant professorship is a most honourable, and we believe a lucrative one, and doubtless there will be numerous applicants.

The number of students the past session was 254, of whom 62 received the degree of M. D., at the commencement held on the 13th March, 1841. At the same time the honorary degree of M. D. was conferred on Drs. Dunlap and Wroth.

* The original of this letter is in the large and valuable collection of MSS., of the American Philosophical Society.—Ed.

† In writing to Dr. Ingenhousz, some time afterwards on this subject, Dr. Franklin said, "Mesmer is still here and has still some adherents and some practice. It is surprising how much credulity still subsists in the world. I suppose all the physicians in France put together, have not made so much money, during the time he has been here, as he alone has done. And we have now a fresh folly. A magnetiser pretends, that he can, by establishing what is called a *rapport* between any person and a *somnambule*, put it in the power of that person to direct the actions of the *somnambule*, by a simple strong volition only, without speaking or making any signs; and many people daily flock to see this strange operation."—*Spark's Life of Franklin.*

Lunatics and Idiots in the State of New Jersey.—From the very interesting report of the commissioners, with a copy of which we have been favoured by the chairman, we learn that the ascertained number of insane males is 252, females 163, computed of both sex 90. The ascertained number of male idiots is 93, females 108. The commissioners earnestly recommend the erection of a state asylum for their relief.

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Connecticut Retreat for the Insane.—1001 patients have been admitted into this institution since its opening on the 1st of April 1824, of whom 563 have been cured. Of the number admitted 537 were recent cases, of which 451 were cured.

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University of Pennsylvania.—The number of students attending the lectures in the Medical department in this Institution the past session was 410.

—

Albany Medical College.—The class in this institution the past session numbered 122; and 29 of them have been graduated doctors in medicine.

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Medical Institute of Louisville.—The class the past session numbered 205.

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Geneva College.—The number of students in the Medical Department the past session was 136; and at the commencement held on the 26th January, 34 received the degree of M. D.

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Harvard University.—The number of Medical students the past session was 88.

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Medical Institute of Philadelphia.—The Summer Course of Lectures will begin on Monday the 5th day of April next, and be continued as usual to the last of October. Applications are to be made to W. E. Horner, M. D., Secretary.

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The Library of Practical Medicine:—Arranged and edited by Alexander Tweedie, Physician to the London Fever Hospital, &c., &c. In consequence of the many applications from country practitioners for the Library of Practical Medicine, the publishers have been induced to commence its publication in a *periodical form.* It will be completed in fifteen Nos. or five volumes, of about 560 pages each, and will be sent by mail to subscribers on the following terms:

On the receipt of five dollars, any two volumes of the work will be sent as directed, done up in six numbers, or the whole five volumes will be sent in fifteen numbers on the receipt of twelve dollars and a half; or any four volumes done up in twelve numbers for ten dollars; or a complete set will be furnished for fifteen dollars handsomely bound in sheep; or any single volume will be furnished neatly done up in extra cloth for three dollars. Those persons who subscribe for the work in numbers, can have at any time a bound set furnished in exchange for numbers, on their paying the difference between the cost of the numbers and fifteen dollars, the price of a complete set, in such cases three numbers belonging to one volume must at least be returned. No part of the work will be sent without the receipt of the money.

The first number was issued on the 1st of January 1841, and a number is to be published every week until the whole fifteen numbers are issued. Each volume will contain about five hundred and sixty large octavo pages, handsomely printed on fine paper. The notices which have been given of this work, will show the high value we attach to it. A copy should be in the library of every physician.

—

Tweedie's Library of Practical Medicine.—Messrs. Lea & Blanchard have just issued the *fourth* volume of this valuable work. It comprises Dissertations on Diseases of the Digestive, Urinary, and Uterine Organs; by Drs. Joy, Symonds, Budd, Thomson, Christison, Ferguson, and Simpson, and will fully sustain the high character acquired by the preceding volumes.

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